FROM THEORY TO ACTION:

A CASE STUDY OF TRAINING TRANSFER IN BANGLADESH

Lona Lee Robertson

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Doctoral Committee

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Yonjoo Cho, Ph.D.

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Gamze Ozogul, Ph.D.

_____
Jeffrey Covin, Ph.D.

Date of Defense
(July 2, 2020)

This paper is dedicated to my mother, whose constant refrain “Education, education, education” appears to have made an impact.

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Lona Lee Robertson

FROM THEORY TO ACTION

A CASE STUDY OF TRAINING TRANSFER IN BANGLADESH

In the development sector, capacity development is understood as a process in which individuals, organizations, institutions and societies develop the capacity to perform functions, solve problems, and set and achieve outcomes. Training is a key component of capacity development, but too often trainees are expected to be able to perform those functions, solve those problems and achieve those objectives after a single training event delivered by a panel of experts. In fact, research has shown that trainees' ability to transfer their learning to the workplace depends on a variety of factors: the trainees' personal characteristics, the design of the training, and the work environment. This case study evaluates the outcomes of a cohort of Bangladeshi municipal officials that attended a workshop on how to implement fecal sludge management. Results showed that the training was successful in motivating and building the participants' self-efficacy, but that taking action on implementation was facilitated or hindered by factors both within and external to the organization. Ultimately, trainees' ability to use what they had learned was largely dependent on the mayor. The implication is that training should not be considered as a one-time event delivered to one group of people, but as an intervention that takes into account the variety of factors that can impact training transfer before-, during- and after- training.

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Yonjoo Cho, Ph.D.

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Gamze Ozogul, Ph.D.

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Jeffrey Covin, Ph.D.

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Chapter 1: Introduction and Background

As recently as 2003, few households in Bangladesh had hygienic toilets (33%) and 55 million people still defecated in the open (Local Government Division [LGD], 2016). Fortunately, concerted efforts by multiple stakeholders to promote the use of toilets across the nation worked to eradicate open-defecation practices, and by 2015 Bangladesh was declared open-defecation free (ODF) (WHO & UNICEF, 2015). While becoming ODF is a major accomplishment, a new reality has emerged. Dhaka is the only city to have sewered sanitation with only 20% of its population having access to it. Most households across the nation rely on onsite sanitation (OSS) technologies. This works to contain the waste (known as fecal sludge), but safely managed sanitation requires an end-to end solution, and latrines represent only the first of four components in the sanitation value chain, *collection*. The three additional components, transport, treatment and re-use/disposal have not been fully addressed (Strande, 2014). Fecal sludge management (FSM) comprises aspects of the sanitation value chain are specifically focused on emptying, collection, transport, treatment and end-use or disposal of fecal sludge (Strande, 2014; Bill and Melinda Gates Foundation [BMGF], 2010).

A study on FSM in urban areas of Bangladesh revealed that public health is being compromised by environmental pollution caused by longstanding neglect to manage, operate and maintain OSS. Furthermore, the current institutional set up is inadequate to manage the challenges (Rahman, Ali, Choudry, Rahman, Redwan, Noor, & Sohan, 2015). The authors of the study recommended that an institutional and regulatory framework (IRF) be developed and supported with capacity building and initiatives for raising awareness. The IRF was developed and unveiled in 2017 (Serao, 2017), and the time had come to begin building both capacity and awareness with local government officials.

Context

There were 532 urban areas and 318 paurashavas (municipalities) that were run by elected councils across Bangladesh. Approximately 60% of the Bangladeshi population lived in urban areas, with 40% living in paurashavas. While many urban areas had access to networked water supply and sanitation, urban slums and paurashavas were lacking both services and infrastructure (Local Government Engineering Department, 2019). The Ministry of Local Government, Rural Development and Cooperatives had the statutory responsibility for sanitation with the local government engineering department, sharing responsibility for decisions related to policy and funding, and projects in paurashavas. As a recent innovation, gaps in capacity related to FSM were pervasive, and sustainable development required FSM-related change across all stakeholder groups along the sanitation value chain. However, top municipal officials in the paurashavas were selected as the first target audience as they were the stakeholders with the mandate to implement FSM within their communities. In November 2018, ITN-BUET conducted workshops to sensitize the mayors of 23 local governments (paurashavas) about the importance of FSM ("FSM identified as immediate solution for coverage," 2018). Included as part of the workshop was a survey aimed at identifying gaps in municipal officials' existing knowledge, skills and abilities with respect to FSM topics. Unsurprisingly, as FSM is a new concept, the survey revealed numerous opportunities for training. Because effective non-networked FSM is a key component of a citywide inclusive sanitation (CWIS) solution, the team decided that training on an integrated approach was necessary as the first step toward successful implementation of FSM.

Stakeholders in this project included the municipal officials, Bill and Melinda Gates Foundation (BMGF), the International Training Network Centre at the Bangladesh University of

Engineering and Technology (ITN-BUET), the Centre for Affordable Water and Sanitation Technology (CAWST), the Department of Public Health and Environment (DPHE), and non-governmental organizations (NGOs) and international NGOs working in the sector. In 2018, BMGF awarded a grant to CAWST and ITN-BUET to deliver training to raise the awareness of municipal leaders of FSM as a viable, long-term option for full-scale sanitation in Bangladesh and encourage them to take action. To that end, they provided funding for advocacy work to inform key decision makers in governments and the international community of successful sanitation approaches to accelerate access to sustainable sanitation. As the end-beneficiary, community members were also key stakeholders. While they were not the target audience for the training, a key message of the training was to include community stakeholders at all stages in FSM implementation.

Theory of Change

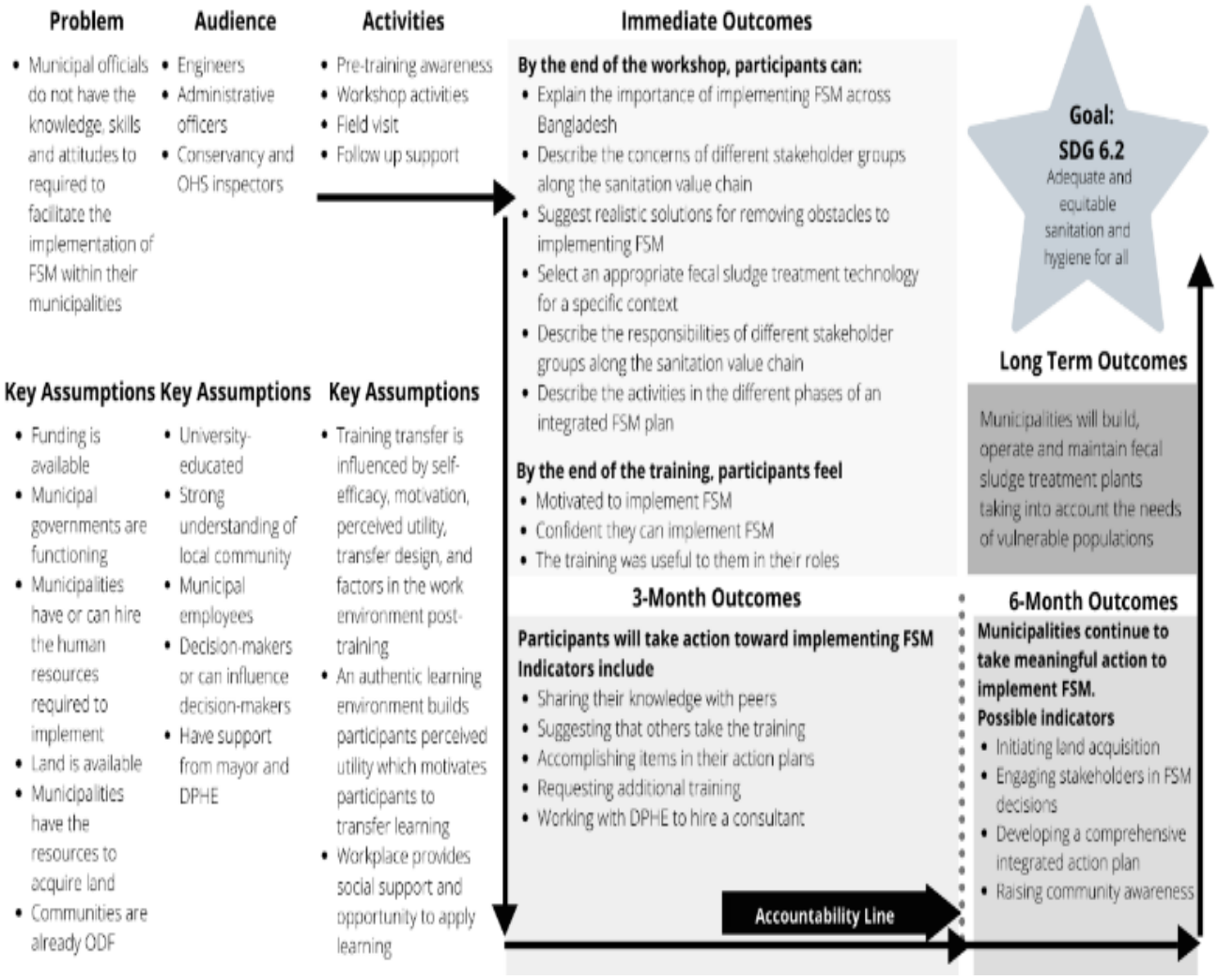
Theory of change is a "comprehensive description and illustration of how and why a desired change is expected to happen in a particular context" ("What is theory of change?" n.d.). Often used by international development agencies to focus complex initiatives (Evaluation Office of UN Environment, 2017), theories of change describe the desired long-term goal, specify the short-, medium, and long-term outcomes, and identify the activities and inputs required to achieve those outcomes. The theory of change process results in a clear strategy for achieving the outcomes, and provides an evidence-based framework against which an initiative can be evaluated. A theory of change helps the evaluation process by helping to determine what needs to measured (Harries, Hodgson, & Noble, 2014). In addition, by clearly articulating the assumptions and contextual conditions that are likely to affect the results at the beginning of a

project, it is possible to better understand why an initiative did or did not work and what went wrong in the process. Thus, lessons learned become evident as the activities are carried out.

The BMGF project theory of change (Figure 1) was created through discussion with the key stakeholders in the project: CAWST, ITN-BUET, and BMGF.

Figure 1

Theory of Change



Note. A larger version of this figure can be seen in Appendix B.

The primary, long-term project goal was that municipal officials and relevant department personnel would be able to safely manage, treat, and dispose or re-use fecal sludge within their communities. Achieving the primary goal required that a number of immediate, short- and intermediate-term outcomes be attained. Immediate outcomes included the learning and motivational outcomes from the training, such as being able to explain the value of implementing FSM, describing the concerns of different stakeholder groups, and suggesting possible solutions for removing obstacles to implementing FSM. Short-term outcomes were focused on whether people took some form of conscious action toward implementation, such as by completing goals specified in their personal action plans, sharing their knowledge of FSM practices with colleagues after the training, and requesting or recommending training for themselves or others. Intermediate-term outcomes included such activities as conducting household surveys, developing an integrated plan to implement FSM and actively working to secure land for a treatment plant. These indicators were considered to be reasonable outcomes given the time frame of the study and based on the concepts of *levels of use* used in the Concerns Based Adoption Model (Hall, Dirksen, & George, 2006). Because social change is a complex, long-term endeavor, the study aimed only to assess mechanisms that affected the immediate- short- and intermediate-level outcomes as indicated by the accountability line in Figure 1.

Problem Statement

While the belief that FSM was the most practical solution to an urgent environmental and public health problem was strong amongst academics in the water, sanitation and hygiene (WASH) sector, there had been little uptake in municipalities. One barrier to implementation was due to a widespread belief that sanitation needs are best met by waterborne, sewer-based systems and that onsite technologies represent only a temporary solution (Strande, 2014). Thus,

an important goal of the project was to not only build capacity in terms of the technical knowledge required to implement FSM systems, but just as importantly to transform existing beliefs about approaches to sanitation, encourage influencers to consider FSM as integral to a city sanitation plan and to implement FSM as a viable, long-term and affordable complement to sewered sanitation. A typical post-training survey focused on satisfaction and learning outcomes would have been insufficient to validate the project's theory of change because it would not have provided any insight into the mechanisms that impact training transfer, nor would it have satisfied the project sponsor's desire to see some evidence of impact beyond the classroom. For that, a more in-depth evaluation was required.

Research Purpose and Questions

The purpose of the study was to evaluate the effectiveness of training in building the capacity of one cohort of municipal officials to implement FSM. Ultimately, project stakeholders wanted to see a social return on their investment through improvements in sanitation and subsequently, public health and the environment. Because FSM is such a long-term endeavor, however, it was not possible to assess achievement of long-term impacts within the timeframe of the proposed study. Therefore, in the short- and intermediate-term, I strove to understand if the intervention resulted in participants transferring their learning by starting to take reasonable actions toward implementation in their respective paurashavas. To improve the training for future cohorts and inform future interventions, I also endeavored to investigate the factors associated with the learner, the training design and the work environment that contributed to the training transfer. Thus, the following questions guided the inquiry:

- To what extent did participants achieve the outcomes identified in the theory of change by five months after the training?

- What aspects of participants' personal characteristics, the training design and the work environment facilitated or hindered achievement of the outcomes?
- What combinations of conditions including trainee characteristics, perceptions of the training design, and aspects of the work environment were found in paurashavas that were successful in achieving the outcomes?

Overview of the Methodology

A mixed-methods comparative case study design (Creswell & Plano Clark, 2018) was selected as the methodology for the evaluation because I felt that I could gain greater insight by combining quantitative data and qualitative data than I could with either type on its own. Conducted in three phases over six months from September 2019 to April 2020, the research involved twenty-four participants from six paurashavas who attended a workshop in September 2019 and were then interviewed five months later at their workplaces. In the first and second phases, sources of data included surveys, observations, and document analysis. Quantitative data were analyzed using descriptive and inferential statistics with IBM SPSS Statistics 26. Qualitative data in all three phases were analyzed using a five stage process that involved compiling, disassembling, re-assembling, interpreting and drawing conclusions (Yin, 2016). The third phase involved comparative case analysis based on the methodology used for qualitative comparative analysis (Ragin, 2014).

Rationale and Significance

There is a gap in the literature in terms of research on the conditions that lead to positive outcomes for capacity building initiatives for organizations in the water, sanitation and hygiene (WASH) sector as a whole, and an even bigger gap in research related to capacity building initiatives for CWIS. This case study seeks to bridge that gap by providing instructional

designers with insight into the conditions that can impact training transfer aimed at public sector organizations so that they can attempt to purposefully address them in capacity development, particularly for CWIS.

Positionality

My positionality as the lead investigator of this research has been both emic and etic. My emic position comes from my active role in the design, development, and delivery of the training being investigated here. My etic perspective arises from the fact that because I am not Bangladeshi, I lack insight into the nuances of both the language and culture, and this lack of insight may have impacted my interpretation of the findings. Moreover, as a female Caucasian of a certain age, I recognize that participants may have responded differently to me than they would have to someone of Bangladeshi origin.

Definitions

The following terms and acronyms are used throughout this paper. To ensure a common understanding, the terms and their operational definitions are provided in alphabetical order here (Table 1).

Table 1

Definitions for Key Terms and Acronyms (A to Z)

Term	Definition
Action learning	A process involving small groups working on real-world issues to learn and develop the capacity to take action
Authentic learning environment	A learning environment constructed to simulate real-life situations
Behavior modeling training	Based on Bandura's social learning theory (1988), BMT is a technique that provides modelling of performance by experts and opportunities to practice supported by feedback and social reinforcement
Bill and Melinda Gates Foundation (BMGF)	As a philanthropic organization focused on global issues, BMGF seeks "to find lasting solutions that stimulate

	household demand for safe sanitation, encourage businesses to provide affordable-yet durable sanitation products and services, and motivate governments to establish effective sanitation policies" (Bill and Melinda Gates Foundation, 2010, p. 2).
Centre for Affordable Water and Sanitation Technologies (CAWST)	A Calgary-based international non-governmental organization (NGO) that provides "technical training and consulting, and [acts] as a centre of expertise in water and sanitation for the poor in developing countries" (CAWST, n.d.).
Citywide inclusive sanitation (CWIS)	A comprehensive approach to providing safely managed sanitation services to all members of society
Department of Health Engineering (DPHE)	DPHE is the primary national agency responsible for providing safe water and sanitation in rural and urban areas that do not already have water supply and sewerage authorities in place. Their main development goal is to improve public health and the environment.
Fecal sludge management (FSM)	Management of all aspects of the sanitation value chain: user interface, collection, transport, treatment, and disposal or end-use
Follow-up support	Support provided post-training to prolong motivation to transfer and increase perceived self-efficacy
Institutional regulatory framework (IRF)	A national framework that establishes the institutional roles and responsibilities for fecal sludge management
International Training Network – Bangladesh University of Engineering and Technology (ITN-BUET)	ITN-BUET has a mandate to build capacity in the water and sanitation sector by providing training to key stakeholders. By acting as a bridge between academics and implementing organizations, it facilitates the transfer of skills and knowledge between the two groups. To that end, they develop courses, modules and materials on a variety of water and sanitation topics as needed.
Motivation to learn	The desire to attend training and participate during training
Motivation to transfer	The desire to apply the learning after the training
Non-governmental organizations (NGOs)	A number of NGOs and international NGOs are actively involved in FSM projects in Bangladesh. As active implementers, they have extensive subject matter expertise.
Supervisor support	Support received from supervisors that motivate and encourage trainees to apply their learning
Peer support	Support from peers in the workplace to apply learning
On-site sanitation systems (OSS)	Septic tanks and other non-sewered systems designed to collect and store human waste
Open-defecation free (ODF)	A status declared when close to 100% of the population no longer defecates in the open
Opportunity to use	The opportunity to apply learning in the workplace
Perceived self-efficacy	The perceptions people have about their own ability to perform at a certain level

Perceived utility	Trainees believe in the usefulness of the training in helping them improve their performance in a relevant aspect of their work
Task-based learning	A training approach centred on activities that require trainees to complete a set of carefully selected real-world tasks
Transfer climate	Forces within or outside of the workplace that can facilitate or hinder transfer e.g. strategic goals, availability of resources, politics, funding

Organization of the Dissertation

This dissertation has been organized into six chapters: introduction, literature review, methodology, findings, discussion, and conclusions and recommendations. The introduction provides an overview of the context of the study. In the literature review, I have presented relevant research on factors that have been shown to impact training transfer. In the methodology chapter, I describe the three-stage mixed methods approach taken to conduct the evaluation. In the findings chapter, I outline the findings at each stage of the investigation. Following the findings, I discuss my analysis and synthesis of the findings. Finally, in the sixth chapter, I conclude the dissertation with my conclusions and recommendations.

Chapter 2: Literature Review

Key to the adoption of any innovation at the organizational or societal level is the capacity and motivation for individuals to change. For some, change is exciting and welcomed. For others, it is stressful and to be avoided. Diffusion of innovation theory is often used to explain these behaviors. Diffusion refers to the process that members of a social system employ to communicate an innovation through various channels over time. Change agencies are the entities that seek to influence individuals' innovation decisions in some way. Most often they try to encourage the adoption of new ideas although they might also try to dissuade the adoption of others (Rogers, 1983). As change agents for the diffusion of CWIS throughout Bangladesh, the BMGF project team sought to encourage the adoption of new ideas and practices related to sanitation. Such a task required more than guesswork. For the initiative to succeed, the team needed to apply evidence-based practices when designing their intervention.

A number of theories offered useful frameworks for both designing and evaluating the training. Diffusion of innovation theory helped address the social aspect of behavior change (Rogers, 1983; Dearing, 2009). Transfer theory, on the other hand, provided insight into the factors that can impact whether or not learning is transferred after the training. According to transfer theory, learner characteristics, the training design, and the work environment all play a role in whether or not a learner acts on the knowledge and skills they acquire through training (Baldwin & Ford, 1988; Grossman & Salas, 2011; Holton, Bates, & Ruona, 2000; Kirwan & Birchall, 2006). The following sections in this chapter detail these theories and describe the constructs and models that framed both the design and the evaluation of the intervention.

Diffusion of Innovation Theory

Adoption of an innovation, which is the aim of a diffusion campaign or intervention, is a complex decision making process involving five steps: "(1) knowledge, (2) persuasion, (3) decision, (4) implementation, and (5) confirmation" (Rogers, 1983, p. 23). Throughout this decision making process, individual perceptions of an innovation can impact the rate of adoption (Rogers, 1983). Perceptions of relative advantage, compatibility, complexity, trialability, and observability all play a role in the process. To facilitate adoption, designers of a campaign must ensure that adopters perceive that the innovation is better than its predecessor, that it is consistent with prevalent social norms and values, and that the innovation is not overly complex. In addition, there should be opportunities for adopters to experiment with the new idea for a limited time and to provide opportunities to observe the results of the innovation.

How the innovation is communicated is not the only consideration, however. Because diffusion occurs within a social system, *who* communicates the innovation is also important. According to Rogers (1983), change agents and opinion leaders play lead roles in diffusion. Opinion leaders are the respected social role models who have the power to influence others within the social system, whereas change agents are typically the technical leaders of an innovation. While respected, change agents do not possess the social capital required to diffuse an innovation.

Knowing how diffusion occurs is helpful, but not sufficient when designing an intervention. Based on a review of the literature on theories and constructs related to innovation adoption, Wisdom, Chor, Hoagwood and Horwitz (2014) conclude that improving rates of adoption involves a complex quality improvement intervention that mitigates the individual, organizational, social, and political influences that can impede the adoption process. Thus,

designing the intervention involves knowing not only who to involve in the intervention and when to deliver it, it also requires a thorough understanding of the context and how to package and present the knowledge so that learners are not only motivated, but also confident in their ability to implement the innovation. For that, intervention designers should turn to learning theories for guidance.

Transfer Theory

According to a study by Saks (2002), only 50% of training investments resulted in significant individual or organizational performance improvement, more than the previous oft-cited but unsubstantiated number of 10% (Fitzpatrick, 2001), but a low number nonetheless. A number of researchers attribute this failure to the complexity of the training transfer process. Training transfer refers to the continuous and effective application of the skills and knowledge acquired through training to the workplace (Baldwin & Ford, 1988; Kirwan & Birchall, 2006). Akin to the pre- and peri- phases of adoption (Rogers, 1983), a number of factors can either impede or facilitate the process.

Since Baldwin and Ford (1988) first identified training transfer as a problem, interest in understanding the factors contributing to the problem and finding solutions to address them has grown considerably. Given the dismal results from training investments, this is hardly surprising. While no intervention can guarantee transfer, there is a far greater likelihood of success if the design is grounded in a researched and documented knowledge base. Therefore, understanding the factors that can impact training transfer can also help designers of human performance interventions because it provides insight into ways that facilitators of transfer can be enhanced and barriers to transfer, removed or mitigated.

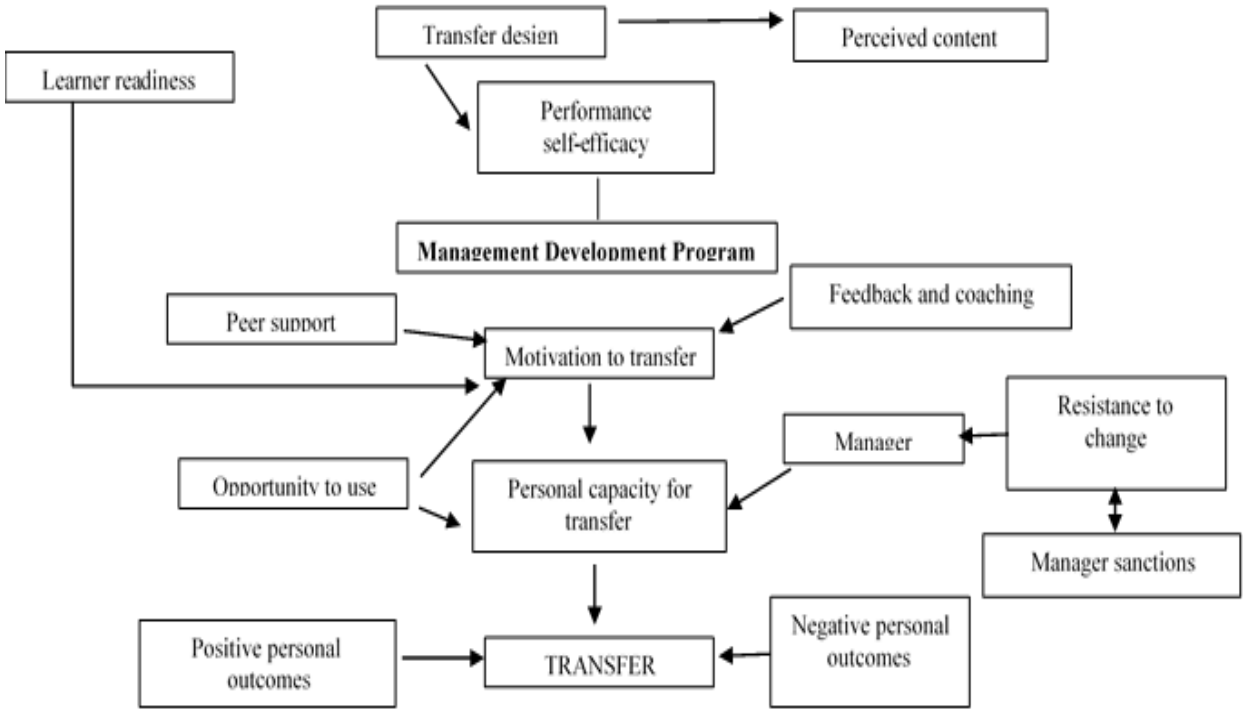
Learning Transfer as a System

Kirkpatrick's four-level model of evaluation has long been the standard for program evaluation (Kirkpatrick & Kirkpatrick, 2016). The model, which is popular partly because of its simplicity, outlines four constructs that can be measured to assess the effectiveness of an intervention. Critics of the Kirkpatrick model claimed that an inherent risk of the model was "that any failure to achieve the outcomes would be attributed to the intervention itself when it could well be due to moderating variables" (Holton, 2005, p. 37). To address these moderating variables Holton (2005) developed a model focused on learning and performance in the context of a system (Holton et al., 2000). Whereas transfer climate was once considered as the full set of post-training influences on transfer, in this new model, it was now felt to be a subset, and understanding transfer required an examination of all the factors that can influence the system, including "training design, personal characteristics, opportunity to use the training, and motivational influences" (Holton, 2005, p. 44). Through further investigation of these factors, sixteen constructs were identified, and the Learning System Transfer Inventory (LTSI) was developed to measure these constructs (Chatterjee, A, Pereira, A, & Sarkar, 2018; Holton et al., 2000). Multiple tests of the instrument produced strong evidence of construct validity (Holton et al., 2000) and cross cultural validity (Chen, 2003; Khasawneh, Bates, & Holton, 2004).

A study by Kirwan and Birchall (2006) reinforced the notion that enabling transfer requires consideration of the combined influences of motivation to transfer and personal capacity for transfer leading to a revision Holton's model (Kirwan & Birchall, 2006, p. 265) (see Figure 2).

Figure 2

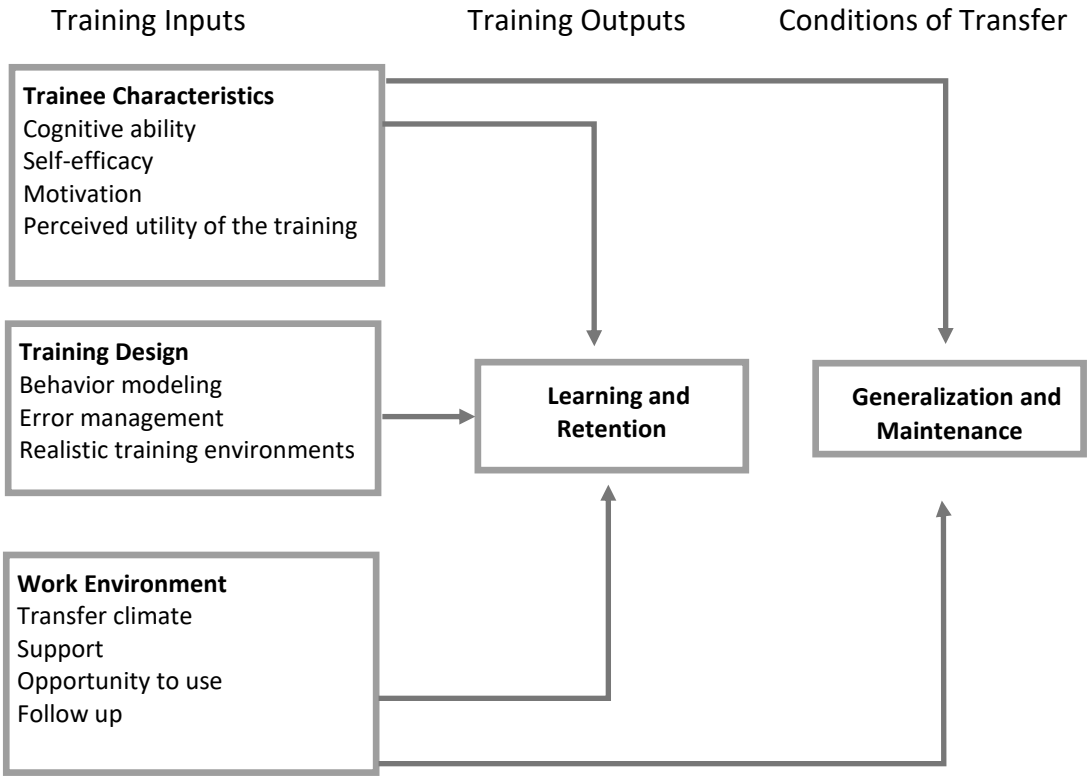
Holton's (2005) Learning Transfer Model Revised



Taking the research a step further, because so many variables made translating theory to practice challenging for practitioners, Grossman and Salas (2011) reviewed the literature to develop a model that included only those variables that have "shown the strongest, most consistent relationships with transfer" (p. 117). The Grossman and Salas (2011) model describes transfer in terms of its inputs, outputs and conditions of transfer and organizes them into three categories: learner characteristics, training design, and work environment (Figure 3).

Figure 3

Grossman and Salas (2011) Conceptual Model of Training Transfer



Learner Characteristics

A number of learner characteristics are considered to have an impact on training transfer (Burke & Hutchins 2007; Cheng & Ho, 2001; Grossman & Salas, 2011; Martin, 2010b; Velada et al, 2007). However, the three most salient characteristics to the purpose of this study are motivation, self-efficacy, and perceived utility of the training. Each of these constructs are described below.

Motivation. Broadly defined, motivation is the "direction, intensity, and persistence of learning-directed behavior in training contexts" (Colquitt, Lepine, & Noe, 2000, p.678). In their seminal meta-analysis of the literature from 20 years prior, Colquitt et al. (2000) examined the role that motivation plays in training outcomes and transfer in an attempt to build an integrative theory of training motivation. While the analysis contributed to the field by providing a deeper

understanding of the relationship between motivation and learning, it did not distinguish between types of motivation.

More recent research categorizes motivation into five types. Of the five, motivation to learn and motivation to transfer are most useful for predicting transfer (Bauer, Orvis, Ely, & Surface, 2016). Motivation to learn refers to an individual's readiness in terms of their desire to learn and develop (Kirwan & Birchall, 2007) whereas transfer describes the learners' desire to apply what they have learned (Bauer et al., 2016). Not surprisingly, motivation to transfer, which is influenced by performance self-efficacy, peer support, and the amount of constructive feedback received (Kirwan & Birchall, 2006), is considered the most important of the two constructs in terms of training transfer and return on training investment (Blume, Ford, Baldwin, & Huang, 2010).

A number of studies showing small to moderate positive correlations between transfer and self-efficacy can be found in the literature (Burke & Hutchins, 2007; Chiaburu & Lindsay, 2008; Velada et al., 2007). According to Bandura (1994), the construct of self-efficacy refers to the perceptions people have about their ability to perform at a designated level. This impacts training transfer because beliefs about self-efficacy influence how people think feel and behave. Individuals with a strong sense of self-efficacy set challenging goals for themselves, sustain their efforts despite challenges, and recover quickly from setbacks. Individuals with low perceived self-efficacy dwell on the obstacles they will encounter, give up quickly when faced with obstacles, and attribute failure as a personal deficiency.

Perceived utility. For maximal transfer to occur, trainees need to believe that the knowledge and skill they are acquiring will lead to improved performance in a relevant aspect of their work (Baldwin & Ford, 1988; Cheng & Ho, 2001; Burke & Hutchins, 2007). Different

studies have found a significant positive influence of expected utility on transfer of training (Axtell, Maitlis, & Yearta, 1997; Lim & Morris, 2006; Velada, Michel, Lyons, & Kavanagh, 2007) and/or transfer motivation (Tonhäuser & Büker, 2016). A study involving 595 participants in a management training program by Van der Locht, van Dam, and Chiaburu (2013), tested the hypotheses that expected utility is positively related to training transfer and that the relationship between expected utility and training transfer is mediated by motivation to transfer. Results supported both hypotheses, leading the authors to highly recommend that organizations provide information to participants about prospective training and show explicitly how it can improve their job performance beforehand.

Work Environment

Kontoghiorghes (2002) asserts that the organizational climate carries more weight with respect to training transfer and performance than transfer design or the learning environment mainly because there are more factors within the environment that can impact transfer. Highlighting the systemic nature of transfer described by Kontoghiorghes (2004), Burke and Hutchins (2007) identified six key elements related to the work environment: transfer climate, strategic links, supervisor and peer support, opportunity to apply, and accountability. The first element, transfer climate, encompasses all the elements in the workplace that either enable or hinder the transfer of learning (Burke & Hutchins, 2007). For example, if training programs do not allow time for sufficient practice to achieve proficiency or neglect to include adequate opportunities to experience success in real world environments (Bandura, 1988), they will quickly abandon what they have learned (Taylor, Russ-Eft, & Chan, 2005). In addition, while not providing an opportunity to apply newly learned skills inhibits transfer, linking training to an organization's strategic goals facilitates it (Burke & Hutchins, 2007; Montesino, 2002).

Peer and supervisor support have also been shown to influence transfer to some degree with several studies suggesting that peer support is the more important of the two (Bates et al., 2000; Facteau, Dobbins, Russell, Ladd, & Kudisch 1995; Hinrichs, 2014; Tonhäuser & Büker, 2016). In fact, Martin (2010a) asserts that the support trainees receive from others is the most consistent factor for predicting successful transfer.

Intervention Design and Delivery

In the development sector, capacity development is understood as "the process by which individuals, organizations, institutions and societies develop abilities to perform functions, solve problems and set and achieve objectives" (United Nations Economic and Social Council, 2006, p. 7). A key goal in capacity development is to increase people's ability to select development options that best meet the needs of the people concerned (United Nations Economic and Social Council, 2006). This focus on the ability to think critically suggests that the training must be designed for learning outcomes at a much higher level than declarative or procedural knowledge levels as defined by Bloom's taxonomy (Kratwohl, 2002). The design must provide participants with the knowledge they need to perform functions, but more importantly it must help them to develop their ability to solve problems and set and achieve objectives and apply them in real-world scenarios. In addition, given that the intent of the training is not simply to build knowledge and skill, but also to trigger social change, the transfer design needs to address ways of building support for the diffusion of new ideas.

Design considerations: Pre-training. Instructional designers have long considered needs analysis as an important stage in the design process. Bates, Holton, Seyler and Carvalho (2000) claim that because content validity is fundamentally important to transfer, a thorough needs analyses before training is critical. Lim and Morris (2006) agree, but claim that it is

important to distinguish learning needs from transfer needs when designing an intervention. Needs analysis for transfer involves developing an understanding of the individual and organizational barriers and constraints the might impede transfer.

For diffusion, Dearing (2009) contends that if diffusion concepts are applied early in the design of an intervention, it is possible to radically impact the scale-up outputs. Listening to adopters helps to identify their "wants, information sources, advice seeking behaviors and reactions to prototype interventions" (Dearing, 2009, p. 509). Research by Levin, Katz and Hamilton (1963) found that decisions to adopt will be made more readily if the characteristics of the innovation are compatible with the potential adopter's context and personal characteristics. In practical terms, this means that designers of an innovation intervention must attempt to explain the innovation so that it is easily understood by the potential adopter and make the ramifications of the adoption readily apparent. They must also clarify how the innovation is different from what it is replacing, and describe how the innovation is more cost effective or efficient that what they are currently doing (Dearing, 2009).

In terms of motivating participants to take the training, a study by Weissbein, Huang, Ford and Schmidt (2011) investigated how pre-training videos could be used to promote participants' beliefs that successful outcomes were possible with effort. Results revealed that the videos had a direct positive impact on motivation to learn, which led to persistent efforts at practice and improved performance in the workplace.

In sum, addressing trainees' transfer needs and motivations to learn before delivering the training can facilitate transfer. While Burke and Hutchins (2007) were unable to find empirical evidence of a relationship between needs assessment and transfer outcomes, few would argue that it is a key element of the design process.

Design considerations: Training. At least two categories of training design constructs can influence transfer: content design and instructional methods (Lim & Morris, 2006). These categories are discussed next.

The content of the training design is integral to motivating transfer, and as previously discussed, declarative knowledge alone is insufficient to convince a potential audience of the importance of adopting an innovation (Dearing 2009). Motivation theory explains that this is because, while providing evidence may be sufficient to achieve learning outcomes, other forces are at play when it comes to transfer. For example, perceptions of utility have been shown to be strongly related to transfer (Colquitt, Lepine, & Noe, 2000; Burke& Hutchins, 2007), and motivation levels tend to increase when trainees value the outcomes linked to learning (Colquitt & Simmering, 1998).

Constructivist learning theories assert that learning environments that incorporate authentic activities within an authentic context will facilitate transfer (Brown, Collins, & Duguid, 1989; Jonassen, 1999). There is some support for this theory in the literature. Results of a study involving 299 participants in project management courses provide some support for authenticity as a factor in transfer (Hinrichs, 2014). In the study, a number of determinants that could affect transfer were investigated, one of which was teaching and learning conditions. Three variables related to teaching and learning conditions were explored: 1) the extent to which the methods supported the learning, 2) the extent to which possibilities of application are presented and discussed in the training, and 3) the extent to which the training resembles the real work situation. Of the three variables, only the third one was shown to have a direct impact on transfer. Thus, an important design consideration for transfer is how to make the learning environment as realistic as possible.

Integral to a constructivist learning experience is that learners have access to and modelling of expert performances and be supported by coaching and scaffolding. Based on social cognitive theory (Bandura, 1977), behavior modeling training (BMT) provides all of these. According to Taylor, Russ-Eft, and Chan (2005), BMT emphasizes five elements during training: 1) a well-defined description of the behaviors to be learned, 2) a model that displays effective use of the behaviors, 3) opportunities to practice the behaviors 4) feedback and social reinforcement following practice 4) a plan to maximize the transfer the behaviors in the workplace. There is strong support for BMT-based interventions in the literature (Burke & Hutchins, 2007; Davis & Luthans, 1980; Taylor et al., 2005;) and estimates on return on investment for BMT have been as high as 45% with effect sizes of 0.31 for overall job performance (Taylor et al., 2005).

Adoption of new ideas is also thought to occur through behavior modeling through information sharing, observation and imitation (Bandura, 1969). Having influencers model the behaviors during the training and provide social reinforcement later could speed up the diffusion process (Valente & Davis, 1999). Qualitative data gathered in a mixed methods study of 415 farmers revealed that adoption of an innovation (conservation agriculture) was hindered or facilitated by the social leaders in the community (Nyanga, 2012). Demonstrations that were held on the farms of chiefs or headmen, were well attended and adoption of the innovation was successful because the practiced had been modeled by people of influence and "most of the farmers seemed to follow the opinion of their local significant persons" (p. 35). In areas where there was less support from leaders, it was more difficult to mobilize farmers to use the practice. Influencers are not always leaders, though. Peers can be equally influential, if not more so.

Understanding who the influencers are for a particular target audience would be valuable information to acquire during the needs assessment phase (Valente & Davis, 1999).

Design considerations: Post-training. Transfer theory has shown that the workplace environment is at least, if not more, important to transfer than the training itself. According to Martin (2010b), self-efficacy and motivation can be addressed through the use of follow-up techniques, which need not be expensive. "Action plans, peer meetings and supervisory consultations can be implemented with minimal cost and represent good value especially given their potential to increase return on training dollars invested" (Martin, 2010b, p. 530).

As previously discussed, strong to moderate relationships have been found between peer support and transfer (Burke and Hutchins, 2007; Tonhäuser & Büker, 2016). A qualitative study on the types of peer support that were most beneficial for transfer revealed that networking and discussing the course content with peers contributed to skill transfer (Hawley & Barnard, 2005). In adoption theory, social influence is seen as integral to adoption. To encourage adoption, Dearing (2009) suggests pairing information with social influence as part of an overall strategy. However, while opinion leaders are influential in the initial stages of adoption (Freedman, 2011), according to Dearing (2009), it is a mistake to assume that adopters prefer the opinions of experts to the people they turn to first for information. Providing access to experts is beneficial, but it is important to engage other influencers as well. Given the role of peer support in supporting transfer, putting a plan in place to encourage peers to become influencers might facilitate the transfer process. To that end, given its emphasis on team-based learning, action learning might be an option. The authors of a qualitative study that explored the usefulness of action learning as a way to build capacity among 17 public sector managers in rural Kwa-Zulu, South Africa concluded that the approach was successful (Blanchard & Carpenter, 2012).

Participants noted that they felt more competent and confident in solving problems and they appreciated the bonds they had formed. Similar results were reported by the author of a study that looked at action learning in terms of its ability to support a positive change in public health service managers' perceived psychological empowerment and self-efficacy in their work (Dowson, 2019). Statistically significant improvement was noted in participants' perceptions of self-efficacy, particularly in terms of problem-solving skills.

The highest rated form of support for trainees to transfer the knowledge and skills acquired in training is the opportunity to use the skills after the training (Burke & Hutchins, 2007; Lim & Johnson, 2002). While this may be true, simply providing opportunities to use does not promise transfer. Bates, Cannonier, and Hatala (2014) claim that there has been a misplaced emphasis on modifying the design of training or the changing the workplace environment to encourage transfer, and that not enough research has been done to understand the trainee as actor in the process. As previously discussed, motivation to transfer is a significant factor in training transfer. However, Bates et al. (2014) see motivation to transfer as two separate constructs: intention and activation, and suggest that designers of an intervention to include strategies to help trainees "plan their actions, anticipate critical transfer opportunities, initiate planned actions, and monitor and evaluate learning transfer efforts" (Bates et al., 2014, p. 395). In line with BMT, transfer and self-efficacy improves when trainees practice scenarios they have developed themselves, possibly because of "additional cognitive elaboration that is required" (Taylor et al., 2005).

Summary

According to the literature, three main categories of factors have the potential to impact the intended outcomes outlined in the BMGF theory of change: characteristics of the trainee, the

design of the intervention, and the conditions in the work environment. As change agents, designers of the BMGF workshop had to look beyond simply disseminating declarative knowledge and procedural skills, and focus on ways to address the key factors shown to impact whether trainees transfer their learning when they return to the workplace. While it was possible to address motivation and perceptions of self-efficacy and utility in the training design, dealing with factors in the workplace environment would be challenging as they were out of the project team's control. Still, being aware of the potential barriers and facilitators to transfer allows a team to strategize how to deal with them. Current theories regarding training transfer and diffusion of innovation provide some insight into what works and what does not.

Chapter 3: Methodology

As previously stated, the purpose of the research was to assess the impact of the intervention, identify the conditions that may have influenced the outcomes and to provide recommendations on how to improve the effectiveness of the intervention going forward. As such, the following questions guided the inquiry:

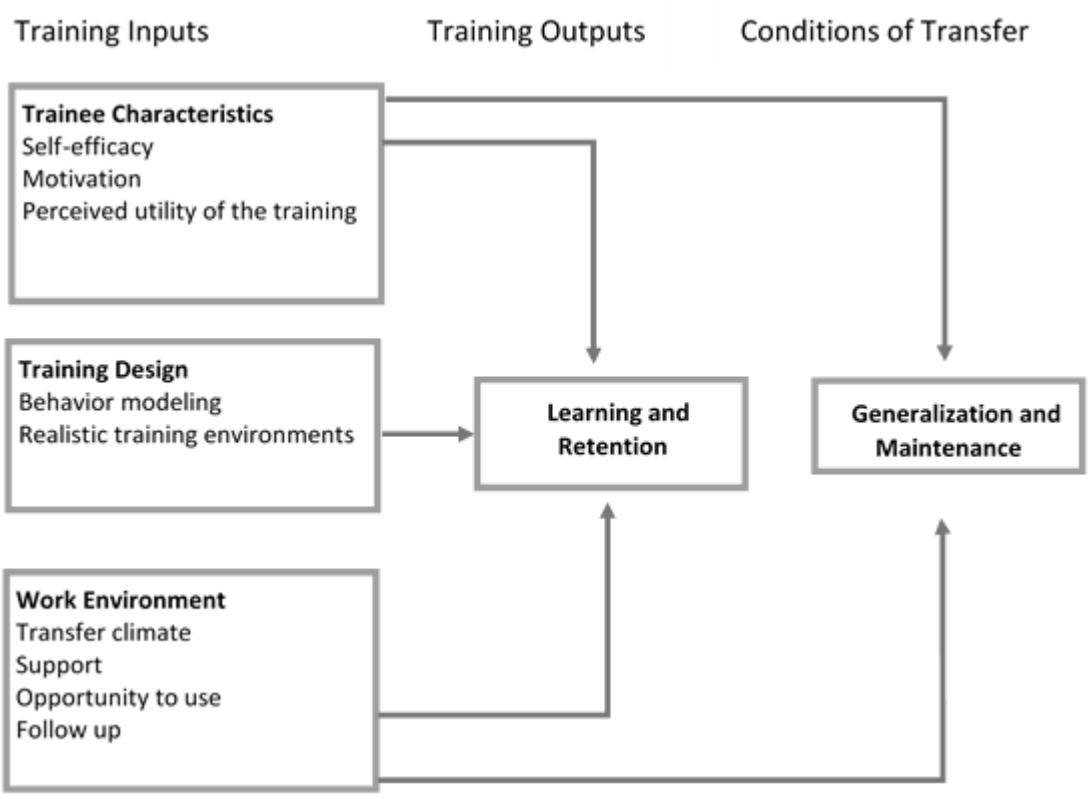
- To what extent did participants achieve the outcomes identified in the theory of change by five months after the training?
- What aspects of participants' personal characteristics, the training design and the work environment facilitated or hindered achievement of the outcomes?
- What conditions and combinations of conditions including trainee characteristics, perceptions of the training design, and aspects of the work environment were found in paurashavas that were successful in achieving the outcomes?

Conceptual Framework

The conceptual framework for the evaluation was based on the model proposed by Grossman and Salas (2011), which they based on the work by seminal authors, Baldwin and Ford (1988) (see Figure 4).

Figure 4

Conceptual Model for the Evaluation



Note. Adapted from "Conceptual model of the transfer process" by R. Grossman and E. Salas, 2011, *International Journal of Training and Development*, p. 106.

I adapted the original conceptual model slightly by removing two factors from my analysis: cognitive ability and error management. Because participants were assigned to attend the training based on their role, cognitive ability was outside of our control. Thus, I made the assumption that all participants, being well-educated professionals, had the cognitive ability to engage with the content presented in the workshop. Error management was excluded because, due to the nature of the training, I did not include any activities associated with error management in the design of the workshop, and therefore, would be unable to attribute any results to its inclusion. Table 2 (below) summarizes the factors described by Grossman and Salas (2011) as critical to transfer that underpin the theory of change for this study.

Table 2

Assumptions Underpinning the Theory of Change

	Factor	Assumption	Evidence
Learner Characteristics	Self-efficacy	Trainees with higher self-efficacy feel more confident about their learning so they apply what they learn and persist in the face of challenges	Baldwin & Ford, 1988; Bandura, 1988; Burke & Hutchins, 2007; Colquitt et al., 2000; Holton, 2005; Velada et al., 2007
	Motivation	Trainees that are motivated to learn and to transfer are more likely to apply their knowledge in the workplace	Baldwin et al., 2009; Blume et al., 2010; Burke & Hutchins, 2007; Chiaburu & Lindsay, 2008; Holton, 2005; Facteau et al., 1995; Lim & Johnson, 2002
	Perceived utility	Trainees that perceive the training content to be meaningful are more likely to apply their new knowledge and skill	Burke & Hutchins, 2007; Chiaburu & Lindsay, 2008; Holton, 2005; Velada et al., 2007
Training Design	Behavior modeling	Trainees who observe positive or negative behavioral models by peers or respected others and who are able to practice their skill are more likely to transfer	Russ-Eft, 2002; Taylor et al., 2005
	Realistic training environment	Trainees who are able to practice new skills in realistic environments are more likely to transfer those skills to the workplace	Burke & Hutchins, 2007; Francom & Gardner, 2013; Russ-Eft, 2002
Work Environment	Social support	Peer and supervisor support facilitate transfer to the workplace.	Blume et al., 2010; Burke & Hutchins, 2007; Hawley & Barnard, 2005; Holton, 2005; Kontoghiorghes, 2002; Saks & Belcourt, 2006; Taylor et al., 2005
	Opportunity to use	Trainees are more likely to transfer if there is an opportunity to apply the learning soon after the training and they have the tools and resources required to do so	Burke & Hutchins, 2007; Holton, 2005; Lim & Johnson, 2002

	Follow up	Additional learning opportunities should be provided after the formal training	Baldwin et al., 2009; Velada et al., 2007

Research Design

In the early 2000s, criticism of international development studies focused on the tendency to rely on quantitative analysis of outputs as opposed to outcomes. In response to the criticism, researchers aimed to find more effective and innovative ways to evaluate development initiatives (Bamberger, Rao, & Woolcock, 2010). However, the subsequent tendency to focus on quantitative approaches alone, while useful for assessing causal attributes, did not take into account the complex environments in which development initiatives operate. To assess more accurately *how* outcomes are achieved (positive, negative or otherwise) and to understand how these outcomes vary over time, Bamberger et al. (2010) suggest using a mixed methods approach. An additional benefit of using a mixed methods approach is that it "provides real-time feedback, allowing the project to learn by doing and to adjust the project to ground-level realities" (Bamberger et al., 2010, p. 3).

The purpose of the proposed research was to determine whether the intervention was successful in meeting the intended short-term outcomes. A mixed methods comparative case study design was selected for the study because it has the potential to bring greater insight into the problem than would a reliance on qualitative or quantitative methods on their own. According to Creswell and Plano Clark (2018), mixed methods comparative case study design is a complex design used when researchers want to triangulate statistical findings with qualitative findings to obtain a more comprehensive understanding of a case, or multiple cases, by collecting diverse types of data. Mixed methods case study design is "popular in health sciences and

education where there is an interest in understanding complex systems as cases" (Creswell & Plano Clark, 2018, p. 117). While any of the core designs can be used as the basis for mixed methods case study, convergent design, which is a type of design in which qualitative and quantitative data are collected in parallel, analyzed separately, and then integrated (Creswell & Plano Clark, 2018), is the most common approach for building the cases.

Because there was necessarily a lag between training and application of the training, the research process included three phases. The first phase focussed on participants' perceptions of the training, their own self-efficacy, and their motivation to transfer. The second and third phases of the design, which occurred four to six months later, examined the actual outcomes as well as participants' perceptions of how and why they did or did not achieve their own previously stated action plan goals. Once it was determined which paurashavas had achieved their goals and which ones had not, the cases were compared to identify the conditions and combinations of conditions that seemed to contribute to positive outcomes. Approval to conduct the research (Appendix A) was received from the Institutional Review Board (IRB) at Indiana University immediately prior to Phase I.

Setting

The training took place at the ITN-BUET training center in Dhaka over the course of four days in September 2019. Because the intent of the workshop was to provide a realistic representation of the FSM implementation process, included in the training was a visit to a fecal sludge treatment plant (FSTP) in Lakshmipur where participants had an opportunity to see the treatment technologies and speak with the local mayor and other local stakeholders. After the training, participants returned to their respective paurashavas across Bangladesh, where they were encouraged to apply the learning from the training by initiating the FSM action plans they

developed in the workshop. For confidentiality, the names of the all paurashavas in this case study have been assigned a pseudonym.

Participants

Purposeful sampling was used to select the participants for the study. Purposeful sampling, often used in implementation research, involves the intentional selection of participants or groups of participants with shared in-depth knowledge or experience with a phenomenon so that they can provide detailed and transferable information (Creswell & Poth, 2016; Palinkas, Horwitz, Green, Wisdom, Duan, & Hoagwood, 2015). Because the focus of the training was to build the capacity of municipal officials involved in projects being funded by The Islamic Development Bank and the World bank, training participants were purposefully selected from paurashavas engaged in those projects. In terms of the cohort that was selected for evaluation, we chose the first cohort because the early findings would allow the team to identify aspects of the training package that could be improved for subsequent cohorts. Participants for the first cohort and all subsequent cohorts were selected based on their roles within their organizations. Twenty-four participants from six different paurashavas represented the first cohort. Twenty-two participants were male and all were between the ages of 27 to 57 with a median age of 42. Descriptive statistics of the participants by role can be seen in Table 3. Participants were sent as teams because it would allow them to have a collective understanding of FSM so that they could begin implementation on their return to the workplace.

Table 3

Distribution of Participants by Role

Participants' Roles	Number of Participants
Secretary or administrative officer	6
Assistant/Executive/Sub-assistant engineer	6

Sub-assistant engineer DPHE	6
Conservancy or sanitary inspector	6
Total	24

All participants were informed verbally and in written form in Bangla of the purpose and benefits of the research and asked for their consent. All participants consented, and granted permission to take and publish their photographs. To protect their identities, all participants were assigned an identification number.

Intervention

Titled *Fecal Sludge Management in Cities: An Element of Citywide Inclusive Sanitation,* the four-day workshop comprised 13 participatory team-based lessons, mini-lectures, a field visit, final team presentations, and sessions for opening and closing activities. Each of the lessons represented a step in the FSM planning process and included a brief lecture followed by an interactive group activity. Designed around the sanitation profiles of two typical Bangladeshi paurashavas, the activities on the first and second day provided opportunities for trainees to work collaboratively in groups of six to engage in a simulation of the implementation process to make the kinds of decisions they would be required to make when implementing FSM in the real world. For the field visit on the third day, trainees were tasked with finding out specific information related to the FSTP, such as why the paurashava had chosen the specific treatment technology in use and the volume of sludge they receive each day. On the last day of the workshop, each group presented an FSM implementation plan for their fictional paurashavas. After presenting the plan and receiving feedback from the other groups and the trainers, trainees were regrouped with their real world paurashava colleagues to create an action plan for

implementing FSM in their respective paurashavas. All mayors were invited to attend the presentation of the action plans.

Design and Development Timeline

The design and development of the workshop was a collaborative and iterative effort involving over twenty FSM academics and practitioners and myself as the instructional designer. The process took about eight months. An initial training session was jointly organized and delivered by ITN-BUET and DPHE in February, 2019. Shortly thereafter, CAWST formally joined the project to work with ITN-BUET to redesign the training module.

Under ordinary circumstances, as the instructional designer my first step would have been to conduct a needs analysis to understand the context and to develop a learner profile. However, I was told that the needs assessment had already been done. Due to ITN-BUET team's unfamiliarity with the instructional design process, the needs analysis was simply a list of potential topics that should be covered. As we could not go back to do a more in-depth analysis, I built a profile by asking the team some questions about the intended audience, and began review of the literature to ensure an evidence-based design. I wanted to understand what research recommended regarding how best to motivate the officials to transfer their learning and adopt new practices. It soon became clear that I would need to incorporate strategies for increasing self-efficacy and motivation into the intervention. Based on the findings from my literature review, I then developed the theory of change that outlined the outcomes expected from the intervention so that we could later assess the effectiveness of the training. In late February 2019, after presenting the theory of change to the ITN-BUET team and getting their agreement on the outcomes, I began working on a prototype for the workshop to show them how

the workshop could look using a participatory approach to learning versus the customary lecture-based approach common in Bangladesh

By early April 2019, I had created all the materials for the prototype. I am not expert in FSM, and did not have an opportunity to work alongside an expert while creating the workshop, so I based the first iteration of the workshop on content from *Faecal Sludge Management: Systems Approach for Implementation and Operation* (Strande et al, 2014). At the end of April 2019, I delivered the prototype to the ITN-BUET team members and potential trainers from DPHE and local NGOs. To build the participants' capacity as facilitators of participatory training, I included a number of lessons from CAWST's (2015) *Delivering Effective WASH Training* workshop as part of the training though these lessons would not be included in the final FSM training package. The participatory nature of the workshop was generally well received, but feedback from the participants indicated considerable revision was required to contextualize the content for Bangladesh. Based on feedback from participants, CAWST and ITN-BUET improved the activities and adapted the content to make it more relevant for Bangladesh. For example, we decided to remove some of the steps from the implementation process, reduce the number of technologies being introduced, and simplify some of the supporting materials. The ITN-BUET team agreed to work on adapting the content and case studies for the lessons. I worked on adjusting the lesson plans and supporting materials.

In July 2019, a training of trainers program (ToT) was delivered to the same group of CWIS/FSM master trainers along with a few additional academic experts and FSM sector professionals. Each participant was given a lesson plan to deliver with a partner. Most of the trainers had delivered lectures before, but for many, using lesson plans and facilitating group work was new. In addition, while all but one had experienced all the lessons as learners, this was

their first opportunity to deliver the lesson plan. Some felt quite nervous. To reduce the stress of using a new approach, I made myself available to answer any questions about the lesson plans and to build their confidence by providing encouragement. Feedback sessions with the entire group were held after each lesson to offer constructive feedback to the trainers on both the delivery and the content. At the end of the workshop, the group agreed upon a schedule for doing a final round of revisions to the content before delivering it to the target audience in September. By August, 2019, all suggested revisions had been incorporated into the training module to be ready for delivery to the first cohort of paurashava officials in September. While the intent had always been to translate the training materials into Bangla, there was not enough time to translate everything before the first workshop. Therefore, while all lectures, explanations, and instructions were given orally in Bangla, as of September 14, 2019, the text in the presentations and most of the handouts was still only available in English. For the four workshops were delivered between October 2019 and January 2020, however, all the materials were translated. Lesson plans and supporting materials for the English version version of the workshop are available in Appendix C.

Instructional Design

To maximize the chances of achieving the outcomes identified in the theory of change, I grounded the design of the intervention in theory. The literature review had revealed that training transfer is impacted by personal characteristics, training design and the work environment, but not all factors within these categories were in our control. Because the scope of the project did not allow us to conduct a thorough needs analysis before beginning the design, I had to make some assumptions. I assumed that because DPHE had selected the paurashavas based on the availability of land for an FSTP, there would be an opportunity to use the learning.

In terms of cognitive ability, I assumed that because all the trainees were well-educated and high ranking officials within the organization that they had high cognitive ability. Having no direct contact with the mayors, I did not address supervisor support in the design. Instead, I chose to focus on factors in the Grossman and Salas (2011) conceptual model that were manipulable to some degree within the intervention, namely self-efficacy, motivation, perceived utility, behavior modeling, realistic learning environment, peer support and follow up. Table 4 summarizes the features of the design and the evidence base that supported it.

Table 4

Features of the Design and Corresponding Evidence Base

Feature	Description	References
Motivational and confidence-building aspects	• Pre-training brochure • Instructors facilitate vs lecture • Differing opinions encouraged • Social support promoted through group activities • Participants set the ground rules for working together • Activities designed to provide opportunities for success • A focus on the human aspect of FSM • Site visit	Baldwin & Ford, 1988; Bandura, 1994; Blume, Ford, Baldwin, & Huang, 2010; Burke & Hutchins, 2007; Colquitt, Lepine, & Noe, 2000; Dearing, 2009; Chiaburu & Lindsay, 2008;; Facteau, Dobbins, Russell, Ladd, & Kudisch, 1995; Holton, 2005, Lim & Johnson, 2002; Tonhäuser & Büker, 2016; Weissbein, Huang, Ford, & Schmidt, 2010
Realistic task-based activities	• Real world scenarios requiring realistic analysis • Site visit • Team-based discussions requiring team-based decisions • Real-world tools such as household survey and power-interest matrix	Brown, Collins, & Duguid, 1989; Burke & Hutchins, 2007; Francom & Gardner, 2013; Hinrichs, 2014; Jonassen, 1999; Russ-Eft, 2002
Behavior modeling	• A large poster describing the activities and outcome for each step of implementation • Examples of real-world successful and unsuccessful implementations • Exposure visit to a functioning FSTP	Bandura, 1988; Francom, G. & Gardner, J, 2013; Russ-Eft, 2002; Taylor, Russ-Eft, & Chan, 2005

	• Discussion with local administrative officials for exposure visit • Opportunities to practice new concepts provided in each lesson	
Feedback and social reinforcement	• Feedback and support from peers • Feedback and support from facilitators	Karl, O'Leary-Kelly, Martocchio, 1993; Lave & Wenger, 1991; Schroth, 1997;
Plan to maximize transfer	• Copy of poster and slide presentations to act as job aids on return to workplace • Workbook and reflection journal to serve as process reminder • Action plan requiring participants to plan their implementation, think about challenges they might face and how they would deal with the challenges	Bates, Cannonier, & Hatala, 2014; Chiaburu & Tekleab, 2005; De Vries, Kremers, Smeets, Brug, & Eijmael, 2008; Martin, 2015; Taylor et al., 2005;

A number of techniques were incorporated into the training design to build motivation and confidence: a pre-training brochure (Appendix D), a safe learning environment, task-based activities, and behavior-modeling training (BMT).

According to the literature, motivation to transfer learning and to adopt a new concept increases when individuals value the outcomes associated with the training or concept (Burke & Hutchins, 2007; Colquitt, Lepine, & Noe, 2000; Dearing, 2009; Salas, Tannenbaum, Kraiger, & Smith-Jentsch, 2012). To that end, I worked with CAWST's marketing specialist to design a brochure to be sent to trainees prior to the training (see Appendix C) to enhance their perceptions of the personal and social benefits of the training. The lines "Position yourself as a leader in sustainable development in your municipality and across Bangladesh" and "As demand for improved sanitation grows, so will the need for managers who knowledge and experience in FSM" were intended to emphasize perceptions of the training as facilitating career mobility. "Enhance your professional skillset" placed a focus on the potential for improved work performance and "FSM is a new concept, but it's vital to public health and the environment,"

emphasized the importance of adopting the innovation. A list of the learning outcomes and references to the fact that they would work in teams to develop an actual plan and visit a functioning FSTP highlighted authentic nature of the activities they would engage in.

Bandura (1994) asserts that motivation to transfer is increased when perceptions of self-efficacy are high, and that one way to enhance perceived self-efficacy is to reduce the stress levels of trainees by creating a "safe" learning environment that enhances a positive mood. A safe learning environment involves trust. To build trust between and among trainees and trainers, and to encourage future post-workshop peer support, the workshop started with a get-to-know-you activity where each person was given a card with some details about a person and asked to find, interview and introduce the person that matched the details. To further enhance social networking, while trainees are allowed to sit with their paurashava colleagues for the first lesson, in the second lesson they were regrouped with people they do not know. These new groups worked together intensively as teams until the end of the workshop.

Three additional strategies were used to build self-efficacy through a safe learning environment in the workshop: having trainees create a cooperative learning agreement, team-based activities, and constructive feedback from trainers. For the cooperative learning agreement, participants were asked to agree on a "punishment" for breaking a rule. Team-based activities contributed to perceived self-efficacy by minimizing the chances for individuals to become frustrated by repeated failure. Because group consultation was required, there was less pressure on any single individual to produce a right answer. Differences of opinion among trainees were encouraged and trainers were asked to make an effort to engage people who were reluctant to speak. As teams worked through the activities, trainers circulated throughout the room to listen in on the conversations, answer questions and provide feedback. If trainers

overheard any misperceptions about the content, they addressed them at the small group level so as not to embarrass anyone in front of the large group. Misperceptions that were common to more than one group were dealt with in the large group so that everyone could benefit from the clarification.

I chose a task-based approach as the foundation for the training design because, according to constructivist learning theory, the extent to which training resembles the real world has an impact on transfer (Brown, Collins, & Duguid, 1989; Duffy & Jonassen, 1991; Francom & Gardner,2013; Hinrichs, 2014; Jonassen, 1999;). The primary goal of the workshop was to provide trainees with the knowledge, skills and attitudes required to implement FSM. Therefore, included with each lesson was a group task that reflected the real-world tasks that take place at each stage of the FSM planning process. To provide a realistic scenario for the tasks, ITN-BUET team created two profiles depicting the sanitation situation of typical paurashavas in Bangladesh (see link in Appendix C). The profiles were based on the details of two real life paurashavas in Bangladesh that had already implemented FSM, but we gave them fictional names so that trainees would not make decisions based on what was done in real life, but what they would do if given the same information. Examples of realistic tasks that teams had to complete included analyzing the current context, conducting a stakeholder analysis, quantifying fecal sludge volumes, developing a service delivery and financial model, and preparing a social mobilization plan.

The activity in the lesson for *Step 1: Context Analysis* (see link in Appendix C) illustrates the kinds of tasks trainees collaborated on. In the real world, to assess the current sanitation situation, municipalities should conduct a rapid technical assessment via a household survey. To mimic a real world rapid assessment survey and to give trainees insight into the challenges they

might encounter when conducting such an assessment, I created an role-play activity whereby one person acts as the enumerator of a survey and the other members of the team act as though they were the households. In creating the survey, I included the actual questions used in a rapid assessment survey, such as "What type of toilet do you use?" How many people use it?" and "Has it [the tank/pit] been desludged before?" The role of the enumerator was to ask the questions to each of the household representatives in turn according to the information in their given profile. Each household profile was slightly different and reflected typical challenges that could be encountered in the real world. For example, in one profile, the respondent had no idea where the containment pit was or whether it had ever been emptied. In another household, the tank was not accessible. In yet another, narrow streets prevented large trucks from accessing the home. After teams had completed their surveys, the trainer brought all groups together to discuss the results, some of the challenges they encountered, and why it was important to collect that kind of data prior to initating FSM in a community. The large group discussion at the end of the lesson was intended to wrap up the activity and assist trainees with identifying the key messages in the lesson.

Based on Bandura's (1977) social cognitive learning theory, BMT methodology involves five elements: 1) a well-defined description of the behaviors to be learned, 2) a model that displays effective use of the behaviors, 3) opportunities to practice the behaviors, 4) feedback and social reinforcement following practice, and 4) a plan to maximize the transfer the behaviors in the workplace (Taylor, Russ-Eft, and Chan, 2005). I incorporated each of these elements into the intervention in the following ways.

Descriptions of the behaviors to be learned were provided throughout the workshop. First, the behaviors required at each step of the planning process were described in the learning

outcomes outlined in the brochure. Second, they were included on a slide at the beginning of every mini-lecture that introduced the lessons. Third, we created a poster that outlined all the steps of the process and placed it at the front of the room so that at the beginning of every lesson, the trainers could refer to the outcomes and activities that took place in the step before, and introduce the activity and outcome for the activity in the next step. Finally, every trainee received an A4-size copy of the poster in their reflection journal, which was a notebook we provided for them to write their reflections in at the end of every lesson.

Several examples of models displaying effective use were provided over the course of the workshop. As subject matter experts, when introducing the topic and key content at the beginning of the lessons, trainers shared their stories from the field and in one lesson showed a number of videos and photographs of successful, and unsuccessful, FSM implementations to highlight what trainees should and should not do when they implement. However, the best example of behavior modeling was the visit to a functioning treatment plant where trainees had an opportunity to see not only the physical infrastructure of the site, but also to speak with an emptier and the local officials to hear firsthand their experiences of building community support for FSM and maintaining and operating a FSTP (see Figure 5).

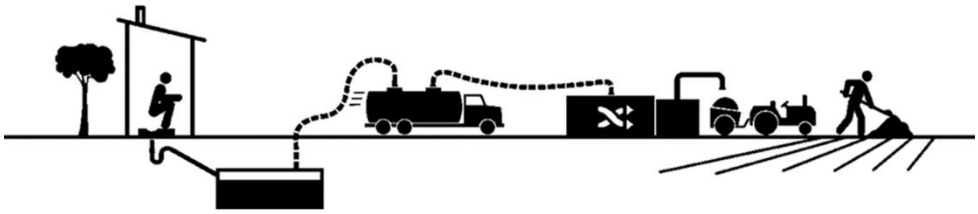
Figure 5

Field Visit to a Functioning FSTP

The task-based nature of the lessons ensured that there was an opportunity to practice each step of the implementation process. Examples of the types of practice trainees experienced can be seen in the lessons for Steps 3, 4 and 10. The activity for Step 3 of the FSM planning process is stakeholder analysis. Stakeholder engagement is critical to successful FSM implementation, and yet in many projects the voices of the most vulnerable people are often left unheard in the planning process (Strande, 2014). To practice conducting a stakeholder analysis, trainees were given a diagram of the sanitation value chain (Figure 6), and asked to think of all the different people or groups in the community who have an interest or influence along the chain.

Figure 6

Sanitation Value Chain



Note. Used with permission from the Bill and Melinda Gates Foundation.

To focus the analysis, the instruction included guiding questions like "Who has decision-making power? Who can support FSM? Who can obstruct FSM? Who can provide funding? Who can provide land? Who might use the end product?" To remind them that the voices of vulnerable populations must be heard as well, the activity for Step 4 had them create a plan to ensure that the needs of people who could be disadvantaged by reason of age, gender, disability, race, ethnicity, origin, religion, economic or other social status were considered at every step of the implementation. In the lesson for Step 10: Service Delivery and Financial Flow models. Trainees were given graphics representing different service delivery and financial flow models, the advantages and disadvantages of those models, and asked to work with their teams to develop a model they thought would work best for their fictional paurashava.

At the end of every lesson was an opportunity for the teams to share the results of their discussions with the large group for questions and feedback from the other trainees and the trainer. In addition, on the last day of the workshop, each team was asked to present the full FSM plan for their fictional paurashava to the large group and to explain the decisions they made along the way. As they did at the end of each lesson, the other groups and the facilitators asked questions and provided feedback on their plans. At the end of the workshop there was an opportunity to receive authentic feedback from the two mayors who had attended the final session. Because the mayors had not attended any of the training sessions and were unfamiliar with the details on FSM planning, the questions were very realistic.

Plan to Maximize Transfer

The plan to maximize transfer of the learning to the workplace involved four elements: action planning, job aids, reflection, and follow up.

The first element in the transfer plan was the action plan. At the end of the workshop, after presenting their fictional FSM plans, trainees were asked to regroup with their paurashava colleagues to create an action plan for implementing FSM in their own real world paurashavas. The two teams whose mayors attended the final session were able to complete this task in collaboration with their mayor or deputy-mayor. The rest of the teams were tasked with presenting their plan to their mayor on their return. To create their action plan, each team was given an action plan template and asked to agree on the actions they would take within one week, three months, six months and one year. For each time period, they had to identify their goal, their actions, any resources required, and who the point person was. Per Bates et al.'s (2014) recommendation to help trainees make their implementation intentions more precise, the action plan included a field that encouraged team members to think about the challenges they could face and develop strategies for dealing with them.

The second element intended to support transfer was the inclusion of job aids and tools in the workbook. The purpose of the workbook was twofold. First, it provided the instructions for completing the exercises during the training. Second, it included a number of job aids that trainees could refer back to to upon their return to the workplace. For example, Step 2 included the key questions they would need to include in a survey when conducting their own rapid technical assessment. Step 5 provided a list of the data required to estimate the amount of fecal sludge that will need to be treated, and a formula for calculating it.

In addition to the workbook, we also provided each participant with a reflection journal. The purpose of the reflection journal was to give trainees time at the end of each lesson to reflect on what they had learned and to consider how it related to implementing FSM in their own municipalities. As a visual reminder of the activities and outcomes for each step of the planning

process, the reflection journal included a copy of the planning process poster. For each step in the process, prompts and a blank space for trainees to write their thoughts were provided. Examples of prompts are listed in Table 5.

Table 5

Sample Reflection Journal Prompts

Lesson	Implementation Activity	Prompt
1	Making sanitation a priority	• We need to prioritize sanitation in our municipality because:
2	Context analysis	• We need the following information from our rapid technical assessment: • Some ways to get this information include:
3	Stakeholder analysis	• Key stakeholders in our municipality are: • The interests and influence of stakeholders in my municipality are:
4	Social and gender inclusion	• Vulnerable groups in my municipality we need to consider are: • In particular, we should focus on the following for these groups of people:
5	Site optimization	• Key criteria for site selection in my municipality are: • We can engage stakeholders in the site optimization process for our municipality by:

We encouraged the trainees to keep us informed when they began to take action on their plans and send pictures if possible. When two paurashavas did, we forwarded the messages on to all the trainees to apply some social pressure for them to take action as well. While not a support, per se, the post-training email interview questions also served as a follow-up activity by reinforcing the notion that there was an expectation that the learning was to be implemented.

Data Collection and Analysis

As previously mentioned, data collection and analysis occurred at each of the three phases. Phase I took place at the time of the training when participants. Phases II and III took

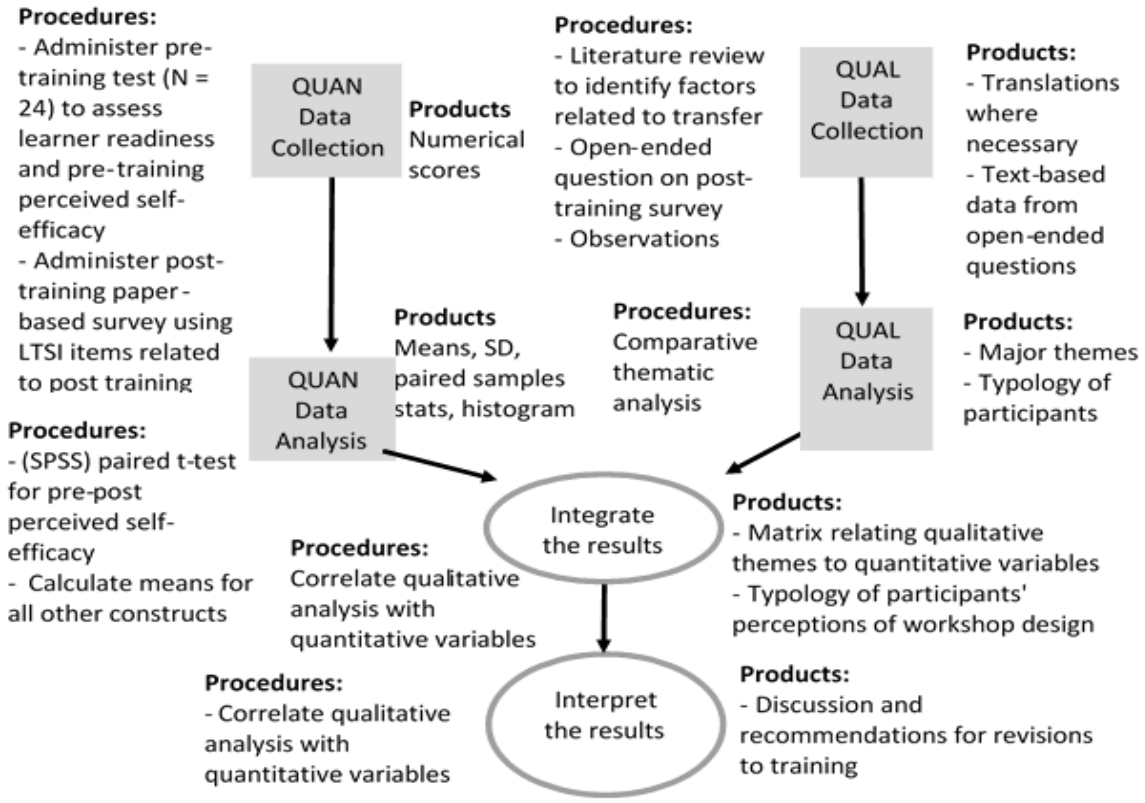
place respectively four and five months later. As the study uses a complex design, I have described data collection tools, protocols and analysis procedures here by phase.

Phase I

Phase I involved both qualitative and quantitative data sources. Qualitative data were collected through direct observation during the training while the pre- and post-training surveys produced both quantitative and qualitative data using Likert-type and open-ended questions. Figure 7 illustrates the data collection and analysis procedures for Phase I.

Figure 7

Phase I Research Design



Phase I Data Sources

Data sources for Phase I included a pre-training survey, post-training survey, observation and documents. A paper-based pre-training survey (Appendix E) was used to assess the participants' motivation to learn and their current perception of self-efficacy on the topics to be covered in the workshop. Results from the survey provided baseline data to compare pre-training perceptions against their post-training perceptions. Quantitative data were collected through Likert-type survey questions using items related to motivation to learn and self-efficacy in the Learning Transfer System Inventory (LTSI) instrument (Bates & Holton, 2012), an empirically validated instrument that assesses participants' perceptions of facilitators and barriers to training transfer. The questionnaire was translated into Bangla by a professional translator and then back-translated to English to ensure accuracy. On the quantitative items, instruments used a scale of 1-5, with 1 representing strongly disagree and 5 representing strongly agree. The Cronbach's alpha for the pre-test was .74 which is considered acceptable for reliability (Gliem & Gliem, 2003).

After the training, participants were asked to complete a workshop evaluation survey (Appendix F). The intent of the survey was to collect data to evaluate participants' satisfaction with the workshop, but more importantly to evaluate their perceptions of potential barriers and facilitators to transferring their learning. Some of the questions were repeated from the pre-training survey to see if their perceptions of self-efficacy had changed as a result of the workshop. Measurement of actual learning was not within the scope of this study because transfer and adoption are impacted by perceptions of self-efficacy not actual self-efficacy. Other questions on the survey were intended to assess participants' motivation to transfer their learning, their perceptions of the utility and relevance of the training, and their perceived

opportunity and capacity to use what they learned on their return to the workplace. Cronbach's alpha for the post-workshop survey was acceptable at $\alpha = .77$ when it did not include items assessing perceived personal capacity to use. Items assessing perceived capacity items had low internal consistency at $\alpha = .35$, but capacity to use did not arise as an issue in the evaluation in any case.

Data were also collected through direct observations over the course of the workshop. While my goal was to be a complete observer throughout the workshop, I was at times called in help facilitate some of the activities. A drawback to my observations is that I do not speak Bangla, so my observations were focused primarily on body language and behavioral interactions between the participants and the facilitators. To mitigate this problem, I asked two members of the ITN-BUET team to also observe and to validate my impressions. To ensure inter-rater reliability, I created a checklist of indicators (See Appendix G) based on the Revised Learning Indicators Scale (RLIS) (Bainbridge-Frymier & Houser, 1999). During the session, I took photographs and recorded field notes of my observations. ITN-BUET team members used the same checklist to record their observations as well. After the workshop, we shared our checklists to corroborate our observations. As per Creswell (2007), I also included my "experiences, hunches and learnings" (p. 134) in my notes.

To corroborate survey responses and direct observations, I took photographs of participants' body language and use of the training materials. I also photographed the entries they made in their workbooks, handouts, reflection journals and action plans.

Phase I Data Analysis

Analysis in Phase I included both quantitative and qualitative methods.

Quantitative data were analyzed using descriptive statistics in IBM SPSS Statistics 26. Demographic data were analyzed for frequencies while items related to motivation to transfer and capacity to transfer were analyzed using the compare means function. A paired samples t-test was used to determine differences between pre- and post-training mean scores of participants' perceived self-efficacy of the learning outcomes to determine if there had been a statistically significant increase.

I analyzed the qualitative data by reviewing the photographs, my notes, and the results from the observation checklist and coding them using a priori codes (Yin, 2016). Specifically, I looked for evidence of self-efficacy, motivation to learn, and perceived utility. Examples of indicators included active participation, relevant questions about the content, discussions about the content outside of the class time, as well as observations of participants reviewing the material on their own time. To triangulate my interpretations of the behaviors I made note of, I spoke with the ITN-BUET team members for their opinions of my observations and later compared these with the survey results. Open-ended questions from the survey were also analyzed according to a priori codes as well as to identify any emergent patterns

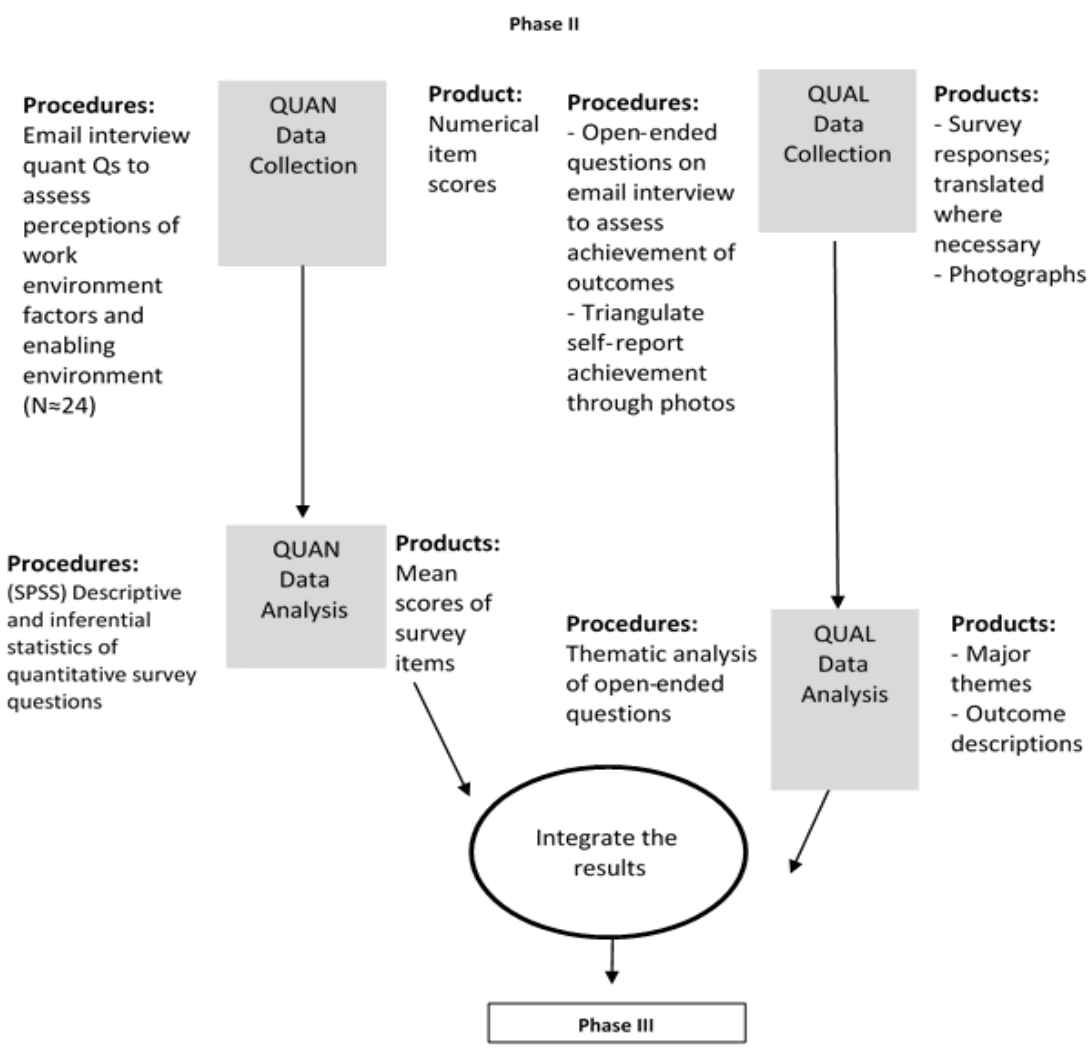
Phase II

Phase II of the research corresponds to Kirkpatrick's Level 3 evaluation, which focuses on changes in behavior that occur as a result of the learning. According to Kirkpatrick and Kirkpatrick (2016), a rule of thumb is to evaluate Level 3 two to six months after the training, depending on the nature of the training. Data for this phase were collected five months after the training partly because of the challenges in coordinating the study from a distance and partly because of what was considered to be a realistic timeframe for participants to be able to take meaningful actions toward implementing FSM. While my intention had originally been to send

out the email interview at three months, validating and translating the instrument took longer than expected. The interview questions asked participants to describe and send any photographs of what they had accomplished to date, particularly as they related to their action plan items for one week and three months. As in Phase I, I used a convergent parallel mixed methods approach for data collection and analysis (Figure 8), which are further described next.

Figure 8

Phase II Research Design



Phase II Data Sources

The primary source of data in Phase III was the email interview, which comprised both open- and closed-ended questions. The closed-ended questions included Likert-type items from the LTSI as well as items assessing participants' perceptions of their enabling environment. Open-ended questions invited more detailed descriptions of the closed-ended questions. Photographs to support self-reported data were also requested. Detailed descriptions of the data sources follow.

The data collection instrument used for this phase was a questionnaire. The questionnaire was prepared in English, and validated by ITN-BUET team members and my colleagues at CAWST. It was then translated into Bangla by the ITN-BUET team. A contract translator back-translated ITN-BUET's version of the instrument to ensure accuracy. Due to unreliable internet access in different regions of the country, some participants' unfamiliarity with online surveys, and the difficulty of typing in Bangla, the ITN-BUET team felt that a paper-based questionnaire sent as an email attachment was best. Thus, participants were given the choice to respond in the Word document and send it back as an email attachment or to print it off and send a photograph of their written responses. Participants were given 10 days to respond. Because the responses were written in Bangla, when we received the responses an ITN-BUET team member translated them into English and entered the data into a Google form in English so that I could analyze it.

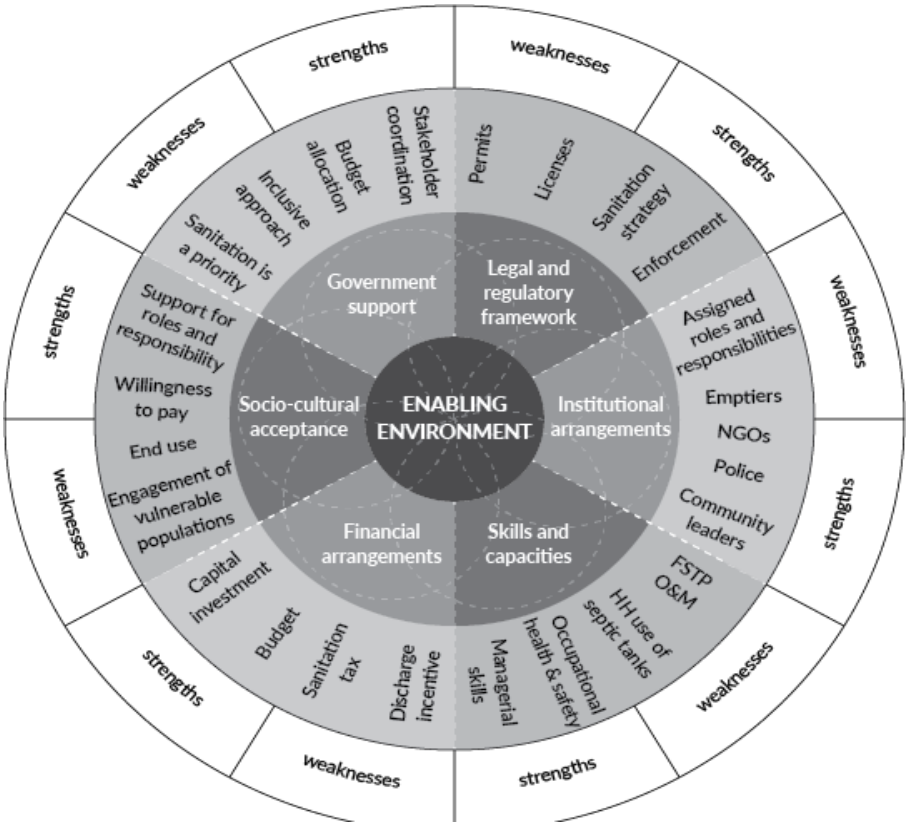
Two versions of the protocol were produced: one for the paurashava staff and one for DPHE personnel (Appendix H). Both interview protocols included three sections with both closed- and open-ended questions. The first two sections were identical. Only the third section differed slightly. In Question 9, whereas the paurashava officials were asked how helpful their DPHE representative had been, DPHE representatives were asked how they had helped the

paurashava. Another difference is that DPHE representatives were not asked for their opinions of the enabling environment. In retrospect, we should have, but it was not done. In the first section of the instrument, participants were given the action plan items that they had created as a team at the end of the workshop four months prior, and asked to indicate which action items they had accomplished, describe what they did, explain their perceptions of what helped or prevented them from accomplishing their goals an.

The second section of the interview was primarily designed to help us understand their perceptions of the transfer climate in their workplace. Items in this section used a five-point Likert scale. Transfer climate items included questions related to participants' perceptions of any peer and supervisor support (5 = Strongly agree to 1 = Strongly disagree) they had received. Because the external environment plays a pivotal role in whether an FSM implementation is successful or not (Akumuntu, Wehn, Mulenga, & Brdjanovic, 2017; Strande, 2014), a decision was made to also include a question to assess paurashava participants' opinions of the enabling environment in their respective paurashavas (5 = Very strong to 1 = Very weak). Participants had learned about the elements of an enabling environment in the workshop, but to refresh their memory of the concept, we included a graphic (Figure 9).

Figure 9

Enabling Environment Graphic



Respondents were asked to submit documents or photographs to substantiate any actions they had taken, such as displaying their action plans in a public place, presenting to stakeholders or holding rallies.

Phase II Data Analysis

Results from Phase II were aggregated at the paurashava level as opposed to the individual level for two reasons. The first reason was logical. FSM requires a team effort, and any success was unlikely to be dependent on the actions of any single workshop participant. The second reason was practical. It was not possible logistically to interview each individual. The time and expense it would have taken to follow up with 24 participants individually and translate their responses was simply too great whereas interviewing six paurashavas collectively was

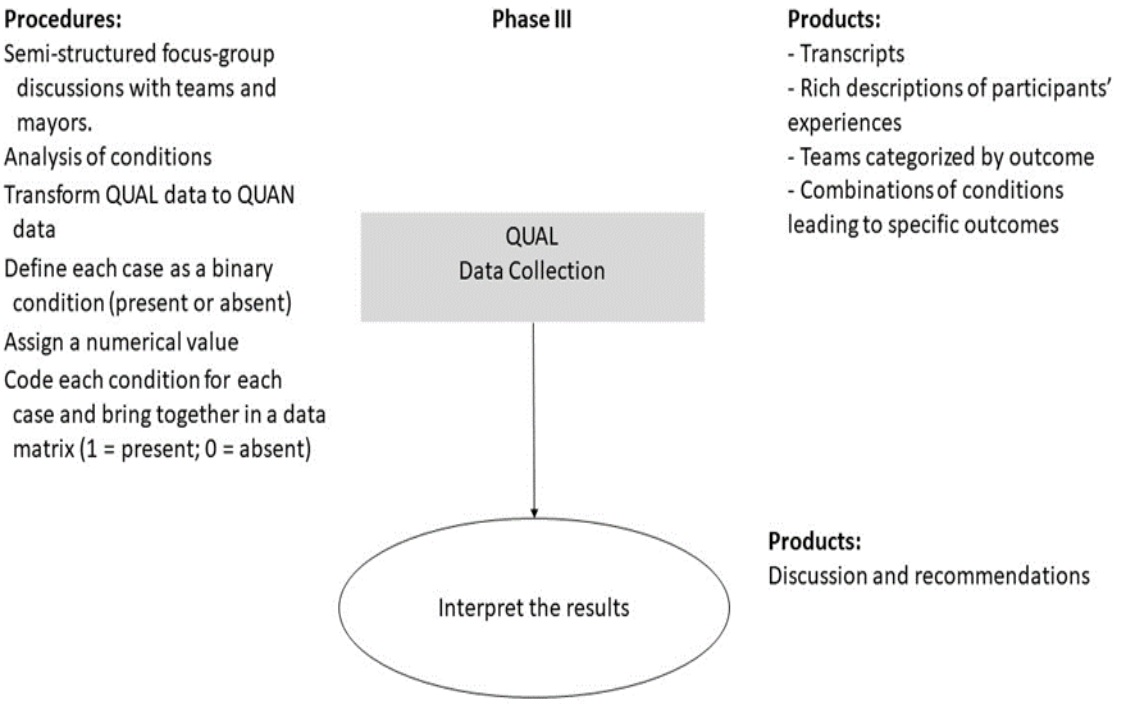
manageable. In the end, it was a wise decision to take this approach because the coronavirus pandemic cut short my time in Bangladesh, and I was only able to visit four of the six paurashavas in person. As in Phase I, quantitative data from Phase II were analyzed using descriptive statistics in IBM SPSS 26. Qualitative data from the open-ended questions were analyzed using a priori and emergent coding (Yin, 2016). Photographs sent as evidence of outcomes achieved were analyzed to corroborate claims that action plan goals had been achieved.

Phase III

Two goals guided the data collection and analysis in Phase III. The first was to validate self-reported achievement of action plan items. The second was to obtain a deeper understanding of what had facilitated or hindered their success in achieving the outcomes. To this end, data collection in Phase III involved primarily qualitative methods: direct observation, semi-structured focus group discussions and interviews, and document analysis (Figure 10).

Figure 10

Phase III Research Design



Analysis techniques included a priori and emergent coding (Yin, 2016) and qualitative comparative case analysis (Kahwati & Kane, 2020; Ragin, 2014). Table 6 outlines the schedule of visits with each paurashava, who we met with and whether we had an opportunity to visit the potential site for the FSTP.

Table 6

Schedule of Visits and Participants Interviewed

Date	Paurashava	Focus group Participants	Other Participants	FSTP Site Visit
March 4	Arupai	• Conservancy inspector • Assistant engineer • Secretary • DPHE sub-assistant engineer	Mayor Councillors	yes
March 8	Lenabol	• Executive engineer • Sanitary inspector	Mayor SNV (NGO)	yes

		• Upazila district administrator • DPHE sub-assistant engineer		
March 10	Pursee	• Engineer • Assistant engineer • Secretary • Conservancy inspector	Mayor	yes
March 11	Gibeta	• Conservancy inspector • DPHE sub-assistant engineer • Administrative officer	Slope Bangladesh (NGO)	yes
March 15	Radigari	• Assistant engineer • DPHE Sub-assistant engineer • Administrative Officer • Sanitary Inspector	Mayor	yes
March 24	Shaburat	• Executive engineer • Secretary • Sub-assistant engineer		no

Phase III Data Sources

In Phase III, the sources of data included focus group discussions, documents and observation. Prior to the field visits, I had developed an interview protocol based on the data collected in Phase II (Appendix I). Questions in the protocol were based on the theory of change, which was loosely based on the constructs in the Levels of Use instrument (Hall et al., 2006), a tool for assessing the degrees to which teachers will implement an innovation after learning about it. While the questions were similar for all paurashavas they were adjusted to align with the responses received from the email interview. For example, if they had reported they had been successful in achieving their action plan items, we probed for the facilitators of their

achievements. If they were unable to accomplish their goals, we probed to understand the barriers.

While the plan had been to meet all participants in their respective paurashavas, as a result of my abrupt departure, I was only able to meet with four of the six paurashavas in person. My ITN-BUET colleague met in-person with the mayor and participants from the fifth paurashava without me. The sixth meeting was held in a virtual conference room using Zoom software once I was back in Canada.

At the five FGDs that I was able to personally attend, I asked the interview questions, my ITN-BUET colleague translated, and the participants responded in the language of their choice. To reduce the potential for power dynamics limiting participants' input during the focus group discussion, we tried to arrange separate interviews with the mayors, but it was not always possible. At two of the meetings, the mayor was present the entire time. At two other paurashavas we were not able to speak with the mayor at all. At one meeting the mayor was distracted by requests from his staff. Each discussion was recorded and all recordings were saved in a password-protected location. Later the recordings were translated and transcribed by an external consultant. Translations were not back-translated, but I compared the translations of my colleagues' notes and verbal reports of what had been said.

Each paurashava was asked to show us a copy of their post-training implementation plan and any other supporting documents they could provide. Other documents requested were photographic evidence of meetings and rallies and potential project documents, such as household surveys. To corroborate reports that land had been acquired, we also asked participants to take us to the site that had been selected for the FSTP so that we could view it firsthand.

Phase III Data Analysis

Data analysis for Phase III involved coding of the transcriptions of the FDGs and comparing the outcomes and themes revealed by the coding. Transcriptions of the FGDs and the observations were analyzed for meaningful statements and coded to correspond with the key factors shown to facilitate or hinder training transfer: motivation, self-efficacy, perceived utility, training design, social support, opportunity to use, and follow-up. Any emergent themes were also noted.

Coded data were analyzed using pattern matching (Yin, 2009) to understand how and why the positive or negative outcomes came to be. Initially, I had intended to use qualitative comparative analysis and fsQA software to identify the combinations of conditions that led to successful outcomes based on the perceptions of 24 participants. However, due to the paucity of qualitative data we obtained from the email-interview and because of the difficulties of conducting 24 individual interviews to get more in-depth perspectives, I chose to limit the scope of the investigation and aggregate the results of the outcomes at the paurashava level. As a method of qualitative analysis, QCA and fsQA software were developed for use with small sample sizes, but according to Kahwati and Kane (2020), "if one has fewer than 10 cases, the number of conditions that can be included in any one analysis is limited. In these circumstances, other approaches to cross-case analysis may be better suited to the goals of the research" (p.51).

With so few cases, while I did not use fsQA, I used QCA methodology to compare the conditions common to the successful outcomes at the paurashava level with the conditions in the negative outcome by combining the qualitative and qualitative data to determine the presence or absence of certain conditions. First, I ascribed the outcomes and conditions in each of the cases as either positive (1) or negative (0). Then, I constructed a table to highlight the different

configurations of numbers. Third, I analyzed the table to identify the combinations of conditions linked to the positive cases that were consistently different from the negative case. Throughout, I referred back to the paurashava level findings to gain more insight into the causal mechanisms implied by the combinations of conditions.

Measures to Strengthen Credibility

A number of measures were taken to strengthen credibility of the research. Due to the pragmatic orientation of mixed methods used, equal emphasis was placed on trustworthiness and validity.

Trustworthiness

The trustworthiness of a study arises from an attitude that must be infused into all elements of the research as opposed to any specific procedures (Yin, 2016). In qualitative research, trustworthiness is attained by establishing credibility, transferability, dependability, and confirmability (Lincoln & Guba, 1985).

Credibility refers to the confidence the reader places on the truth of the findings. For this study, I attempted to establish credibility by taking a multi-phased approach, by triangulating the data, and by examining cases that did not demonstrate achievement of outcomes. Member checking is another way to address credibility in qualitative research. Due to the time and cost of translating the analyses, member checking was not possible for this study, but we did try to confirm our understanding while we conducted the interviews. I also included word-for-word translations of participants' comments in my analysis to ensure their voices were heard.

Transferability refers to the degree to which a reader considers the findings of the research to be applicable to other contexts. Thick description is one way to achieve transferability (Lincoln & Guba, 1985). While the first two phases of the study were primarily

quantitative with open-ended questions offering only thin descriptions, the third phase allowed for the opportunity to provide thick, rich descriptions of the participants' experiences which helped to explain the outcomes.

Dependability is the degree to which the researcher can show that the findings are consistent and replicable. A technique for establishing dependability is an inquiry audit. An inquiry audit involves the use of people from outside the study in reviewing both the process and the product to evaluate the degree to which the data supports the findings, interpretations, and conclusions (Cohen & Crabtree, 2008). A number of external auditors reviewed both the process and product. In addition to the entire team at ITN-BUET, a number of CAWST staff, the BMGF funder, and my research committee also conducted reviews and provided their feedback.

Confirmability refers to the degree to which the researcher can convince the reader that the findings of a study are shaped by the participants and not motivation, bias or interest of the researcher. To strengthen confirmability, I created an audit trail that includes clear and detailed records and descriptions of what was done throughout all phases of the inquiry process (Lincoln & Guba, 1985). Another technique I used enhance to confirmability is to report on how my positionality may have impacted the research (Cohen & Crabtree, 2008).

Validity

In quantitative research, there are four types of validity: internal validity, external validity, construct validity and conclusion validity. According to Schutt (2017), internal "validity is strengthened with a mixed methods design … when qualitative interviews or observations are used to explore the mechanism involved in a causal effect" (p. 166) while external validity can be improved by repeating a quantitative study in different contexts so that they can be compared. Both of these approaches will be used in this study although it is not the

goal to generalize the findings beyond the proposed context. The study uses a variety of data collection methods and because the participants will come from different municipalities, comparing one with one another will help reveal the conditions for the effects. Construct validity can be jeopardized by inadequate operationalization of the constructs. To deal with this threat, each construct has been defined and will be measured by previously validated instruments.

A study examining the dimensionality of the items in the LTSI found strong support for the discriminant validity and distinctiveness of the factors measured in the LTSI, which supported previous construct validation research on the instrument (Bates, Holton, & Hatala, 2012). Another study by Kim, Bates and Song (2019) focused on the reliability of the instrument. Of the items used in this study, five were considered to be very good ($.85 \leq \alpha < .90$), two were good ($.80 \leq \alpha < .85$), one was acceptable ($.75 \leq \alpha < .80$), and one was borderline acceptable ($.70 \leq \alpha < .75$). However, because the wording of some of the items was changed slightly, external validators were asked to review the instrument again prior to administering it. I also performed separate Cronbach's alpha analyses of the items in each instrument used in this study.

Conclusion validity is the degree to which the conclusions reached are reasonable given the data. Threats to conclusion validity can be reduced by assuring that the program was implemented as designed. One way I did this was by first training the trainers to follow the training design, and second by observing the workshop myself to ensure that it was delivered as intended.

Study Limitations

The study had a number of delimitations and limitations. The delimitations include the decision to limit the investigation to one cohort due to complexities of the study and to minimize the amount of input required from the ITN-BUET team. The time and expense involved for travel and translation required purposefully selecting the sample and aggregating the data to reflect only six cases. Thus, one limitation is the small sample size because it means that not only are the findings not generalizable outside of the specific context or even outside of the specific time period in which the study was conducted, there are few examples represented. My choice to minimize input from the ITN-BUET team was made primarily so as not to encroach on their day-to-day responsibilities. The findings of the study were intended to benefit the organization, but I could only ask the team to do so much. They had committed a significant amount of time to helping me collect the data, but were not able spend as much time to analyze the data along with me although they did provide their feedback after I delivered my report. Similarly, due to the fact that member-checking would require translations of my analyses, a request for time from the participants to review them and a lag in time while I waited for their reviews, I did not get confirmation from the participants that I had accurately reflected their viewpoints. Thus, a second limitation is reduced credibility due to the absence of member checking. I have tried to compensate for this by quoting their words directly when possible.

Other limitations of the study involved language barriers, my own inherent bias and the fact that the COVID-19 pandemic precluded my ability to visit all sites in person. Inherent bias was unavoidable due to the fact that I had been instrumental in the design of the workshop and naturally wanted it to succeed. To address inherent bias, I created an audit trail and asked external auditors to assess the degree to which the data supported the findings. In terms of

language, while the ITN-BUET staff members spoke both English and Bangla, I could not. Subtle nuances and cultural attitudes may have been lost in translation, which may result in some qualitative data being misconstrued. To mitigate the limitation, ITN-BUET staff translated the questionnaires into Bangla and interpreted during the face-to-face meetings. A contract translator transcribed and translated all recordings of the discussions. Due to the volume of content, it was not possible to back-translate all documents, but I compared the translator's version with notes the ITN-BUET staff had taken and with their verbal summaries and interpretations of the discussions. We were able to work around restrictions caused by the pandemic by having my colleague go in my place to one site and by using online communication technologies to speak with participants at the last site.

Participants' self-report bias is another limitation of the study. To mitigate self-report bias, I tried to gather evidence from different sources to triangulate the data. Nevertheless, we were forced to arrange focus group discussions (FGD) rather than individual interviews so as to optimize the time. Efforts to interview mayors and participants separately were made, but it was not always possible, and in two cases, the mayor was unavailable. Power dynamics within the discussions also came into play. In accordance with the hierarchical nature of the culture (Hofstede Insights, n.d.), in some discussions only the most senior person answered, so more junior personnel were unable to voice their opinions. We tried to mitigate this by asking individuals directly, but often they simply echoed the voice of their superior. To understand the role that external stakeholders played in FSM activities and to validate claims made by the paurashavas, separate meetings were arranged with local non-governmental organizations (NGOs) that were active in FSM activities.

A further limitation of the study is the method I used to compare the cases. I used a modified version of QCA to identify the conditions and combinations of conditions that may have produced the outcomes; however, a limitation of the method is that it cannot be used to estimate the relative importance of any of those combinations. Moreover, because I dichotomized the conditions and outcomes as either present or absent, there is a risk that I oversimplified rich qualitative data and misclassified conditions as present or absent.

Summary

In this chapter, I described the purpose of the research, the research questions, the setting, the process and rationale for the methodology, the delimitations and limitations, and issues of trustworthiness. As applied research, the goal of the study was primarily formative and intended to provide recommendations for improving the *FSM in Cities: An Element of CWIS* training materials and delivery to future cohorts. Twenty-four participants in six municipalities were followed over the course of six months to understand how or if the training had impacted their motivation and ability to implement FSM in their respective paurashavas. A mixed methods approach was taken because the variety of data sources allowed us to gain insights that quantitative or qualitative methods alone would be unable to provide. Qualitative data sources included direct observation, open-ended questions on surveys and focus group discussions. Quantitative data included the results from three surveys. A number of measures were taken to address credibility/validity and dependability/reliability in line with recommended practices for both qualitative and quantitative research. That said, the international aspect of the study required that delimitations be put in place. Several of the delimitations, such as the cost of travel and translation, triggered resultant limitations in the findings.

Chapter 4: Findings

In this chapter, I discuss my findings. Results are categorized by phase. Phase I results reflect the data collected before, during and immediately after the training. Phase II results summarize the findings from the email interview sent out four months post-training. Phase III results include summaries of the focus group discussions as well as the comparative analysis. Within each phase, the results are presented by thematic categories: outcomes and the constructs within the conceptual framework.

Phase I

Phase I findings are the result of observations, document analysis and two surveys that were distributed at the time of the training - one before the training started and one at the end. The pre-training survey items assessed participants' motivation to learn based on their understanding of the personal benefits of the training and the usefulness of the content to their workplaces. It also assessed participants' pre-training level of confidence regarding workshop learning outcomes. The post-training instrument used the same learning outcomes items and included items measuring motivation to apply the learning and perceptions of the usefulness of the training. It also assessed participants' perceived opportunity and personal capacity to use the training in the workplace. All participants completed both Phase I surveys (100% return rate).

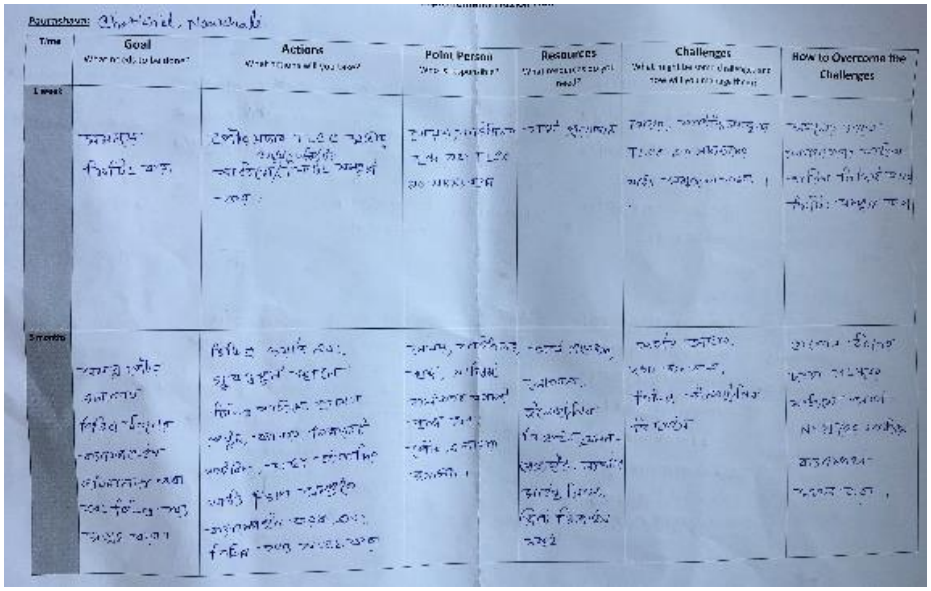
Learning Outcomes

In addition to informal opportunities provided throughout the workshop during the activities, near the end of the workshop, teams were given two formal opportunities to demonstrate what they had learned in the workshop. The first was a presentation of the FSM implementation plan for their fictional towns. The second was an opportunity to document their next steps for applying what they had learned on their return to the workplace. Analysis of the

presentations and action plans indicated that the participants had a strong understanding of the steps of the implementation process and what needs to take place at each step (Figure 11).

Figure 11

Sample Action Plan



Self-Efficacy

Perceptions of self-efficacy were evaluated by comparing pre-training self-assessments of participants' level confidence of their knowledge of the learning outcomes with their post-training perceptions. Internal consistency of the instrument was good with Cronbach's alpha $\alpha = .84$. A dependent t-test, which determines whether the difference between the means of two related groups is statistically significant, was conducted to identify changes in perceived self-efficacy of each learning outcome pre- and post-training. Results indicated increases in perceived self-efficacy for all learning outcomes (Item 1: $t(22) = 6.14$, $p<.001$; Item 2: $t(23) = 5.02$, $p<.001$; Item 3: $t(23) = 4.49$, $p<.001$; Item 4: $t(22) = 8.78$, $p<.001$; Item 5: $t(23) = 7.62$, $p<.001$; Item 6: $t(23) = 5.78$, $p<.001$). Large effect sizes were seen with all items. Effect size numerically measures the strength of a relationship between two variables. Effect sizes larger

than .8 are considered to be large (King et al., 2011). The larger the effect size, the stronger the relationship between two variables. At 4.49 to 8.78 the effect sizes were very large. This data corroborated analysis of the action plans and presentations which demonstrated participants' achievement of the learning outcomes.

Motivation

Participants' active engagement throughout the workshop provided strong evidence of their motivation to learn. Animated group discussions took place throughout the day most notably when given tasks to complete (Figure 12).

Figure 12

Examples of Active Engagement During Task-Based Activities

In addition, discussions about the workshop content were overheard during the breaks and during the bus ride to and from the treatment plant visit. When facilitators lectured for too long, however, participants became disengaged and more than one participant fell asleep (Figure 13).

Figure 13

Example of Passive Engagement and Sleeping Participants During Long Lectures

A dependent t-test was done to see if motivation had increased as a result of attending the training. While the mean score assessing participant's motivation to apply their learning had increased from 4.54 (*SD* = .42) to 4.70 (*SD* = .59), the difference was not statistically significant. There was also no statistically significant difference in the item assessing participants' perceptions that the training would help them make decisions related to a critical problem in their municipality. Pre- and post-training mean scores on this item were identical (*M* = 4.54, *SD* = .588). One reason that increases in motivation were not observed could be that their motivation to apply was already high, and there was little room for gains. It is salient that their high level of motivation was maintained, however, because high levels of motivation to transfer may be a proxy indicator of their high-perceived self-efficacy given that self-efficacy is correlated with motivation.(Bandura, 1977; Bandura, 1988).

Perceived Utility

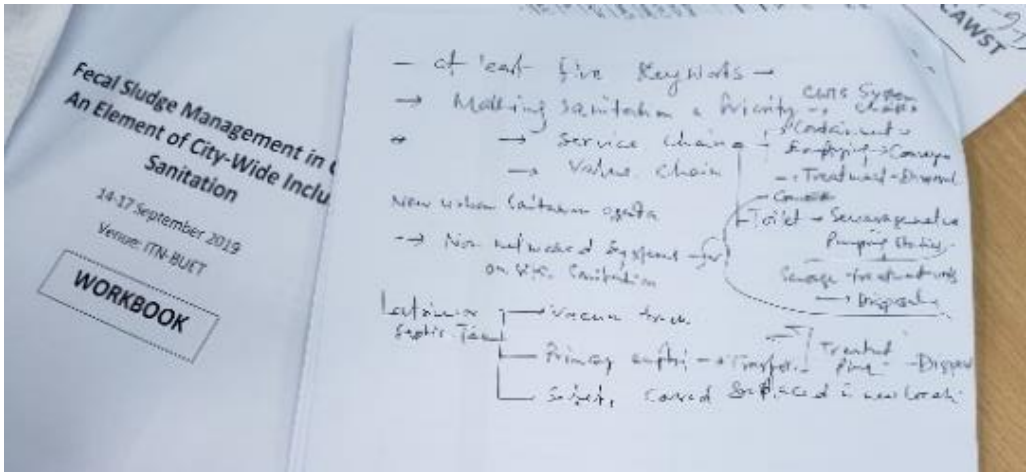
To assess perceived utility, I observed participants' behaviors and analyzed photographs showing what participants were doing with the training materials. Photographs indicated that participants actively engaged with the training materials (Figure 14) and took relevant notes in their workbooks (Figure 15), suggesting perceived utility.

Figure 14

Example of Active Engagement with Training Materials

Figure 15

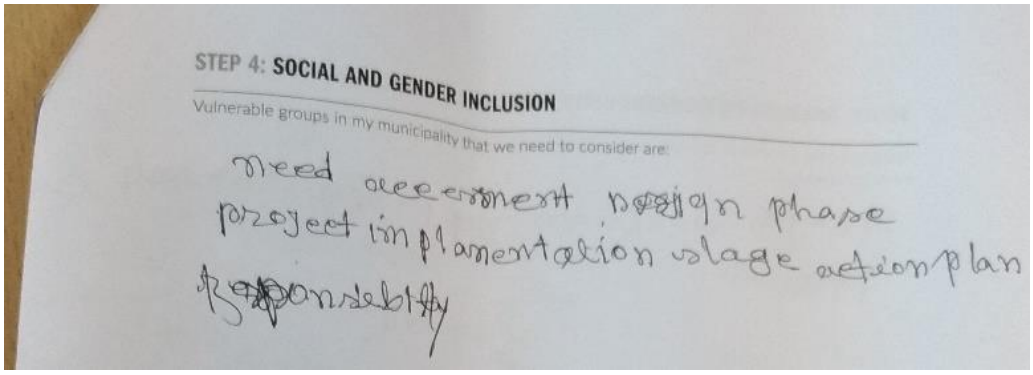
Example of Notes in a Participant's Notebook



However, they appeared unsure of the purpose of the Reflection Journal as some participants' notes did not reflect the prompts. In some cases, this could partly be a function of language proficiency (as first cohort most of the materials had not yet been translated), but it could also be that they simply did not understand the purpose or benefit of the journal (Figure 16).

Figure 16

Example of Notes in a Reflection Journal



Further evidence of perceived utility could be seen when participants took photographs of the presentation slides and through the questions they asked, such as, "How many families do they have to design a FSTP for?" and "What kinds of cautions should we take for emptiers?" Comments also provided valuable insight into their perceptions of the utility: "I want to know more about IRF and social mobilization" and "I didn't know about FSM before, now I do. I want to learn more about it especially social awareness" and "FSM could help improve our environment. I love learning about it."

In the pre-training survey, mean scores of 4 and higher on four of six items related to motivation and perceived utility indicated that participants generally felt motivated to learn and believed that the training would benefit them professionally, but they were less sure what to expect in the training (M =3.74, SD =.69) and how it might fit with their professional development goals (M = 3.96, SD =.71).

Perceptions of the Training Design

Overall, satisfaction with the design of workshop was positive (M = 4.75, SD = .53). Open-ended questions revealed that while one participant felt that the group work was a "waste

of time," 29% of participants commented that they appreciated the group discussions and participatory approach and 21% commented on the sincerity and capacity of the trainers. One participant had attended the previous version of the workshop in February 2019. In comparing the two, he stated at the end of the training:

> most of the trainers [at the previous workshop] were experienced and academic person, and they were much more senior to us. So, whatever they delivered to us as trainers, we could … learn mostly through listening to them. But in this training, most of the trainers were much younger, almost the same age as us. So, we could easily communicate with them. In fact, we probably talked more than they did. And because of that we learned more from our real-life experience and it helped us to understand the topic better. We will be implementing these experiences in our paurashavas in the future.

Effective time management was appreciated by at least two people, the topic of the workshop itself mentioned by four participants, and one person said everything was good. Areas where participants felt the training could be improved included more real world examples in the form of documentaries and field visits (30%), making the workshop longer to make it more extensive or having shorter travel time to the field visit (25%). Two people asked that the presentations be more informative, but it is unclear what they meant. Table 7 summarizes the findings for Phase I.

Table 7

Phase I Summary

Positive Findings		Negative Findings	
Finding	Indicator of	Finding	Indicator of
• Sustained engagement throughout	Motivation to learn	• Passive engagement during long lectures	Low motivation to learn

workshop during task-based activities			
• Workbooks used for notes and tasks	Perceived utility	• Participants unsure of purpose for Reflection Journal	Low perceived utility
• Participants taking photographs	Perceived utility	• Perception of one student that group work was a waste of time	Low motivation to learn due to lack of pre-training awareness of workshop method
• Statistically significant gains in perceived self-efficacy	Perceived self-efficacy	• Requests for more examples and field visits	Importance of modeling for perceived self-efficacy and motivation
• Motivation to remained high after workshop	Motivation to transfer		
• High satisfaction with participatory approach	Effectiveness of task-based learning		
• Field visit was appreciated	Effectiveness of behavior modeling		
• Approachable trainers	Contributory factor for self-efficacy		

Phase II

Findings at the stage were the result of document analysis as well as analysis of the closed and open-ended questions in the email interview questionnaire. Of the original 24 participants, 21 completed the questionnaire instrument (88% return rate). Twenty of the 21 respondents were male.

Self-reported Achievement of Action Plan Goals

With respect to their action plans, all participants reported having achieved their Week 1 goals, while 71.4% claimed to have achieved their three month goals. Within paurashavas, some

participants held differing opinions on goal achievement. The results by paurashava are detailed in Table 8.

Table 8

Self-reported Achievement of Action Plan Goals

Paurashava	N	One-week Goal Achieved (%)	3-month Goals Achieved (%)		Land Acquisition in Process
			Yes	No	
Shaburat	4	100	100	-	yes
Lenabol	4	100	100	-	yes
Gibeta	3	100	67	33	no
Raidigari	4	100	100	-	yes
Pursee	2	100	-	100	yes
Arupai	4	100	67	33	yes

Twenty of twenty-one respondents (95%) reported their paurashava as having taken some action to increase public awareness of FSM, but only two documented their claims with photographs. Photographs sent to ITN-BUET within two weeks of the training corroborated claims by Shaburat and Lenabol that they had held stakeholder meetings (Figure 17).

Figure 17

Shaburat and Lenabol Post-Training Stakeholder Meetings

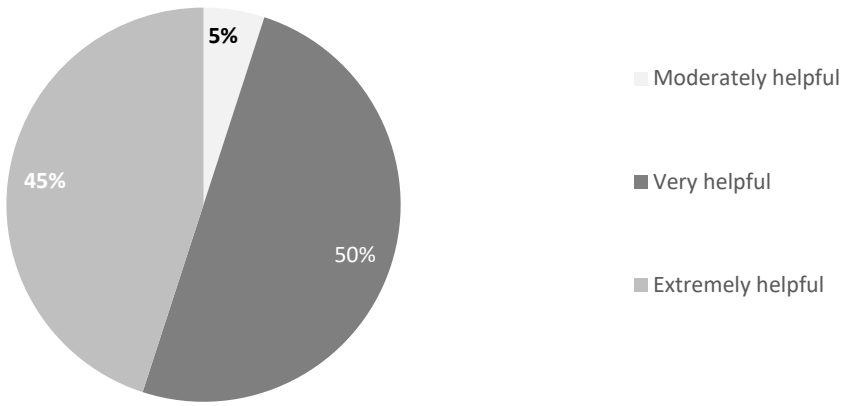
Analysis of the photographs appeared to validate participants' claims that meetings were held with stakeholders. In the Shaburat photograph, the banner clearly referenced the workshop and showed a meeting with the mayor and others. The banner for Lenabol refers to sanitation though not specifically FSM and includes members of the TLCC. Participants from Lenabol also sent photographs of a rally that was held to increase public awareness of sanitation.

Perceptions of the Training Design

In terms of what respondents felt had contributed to their ability to achieve the goals, five of the 21 respondents specifically cited the *FSM in Cities: An Element of CWIS* workshop. In addition, 95% of respondents (N=21) felt that the training had been very helpful (50%) or extremely helpful (45%) to their individual role in implementing FSM (Figure 18).

Figure 18

Percentage of Participants That Found the Training to Be Helpful to Their Role



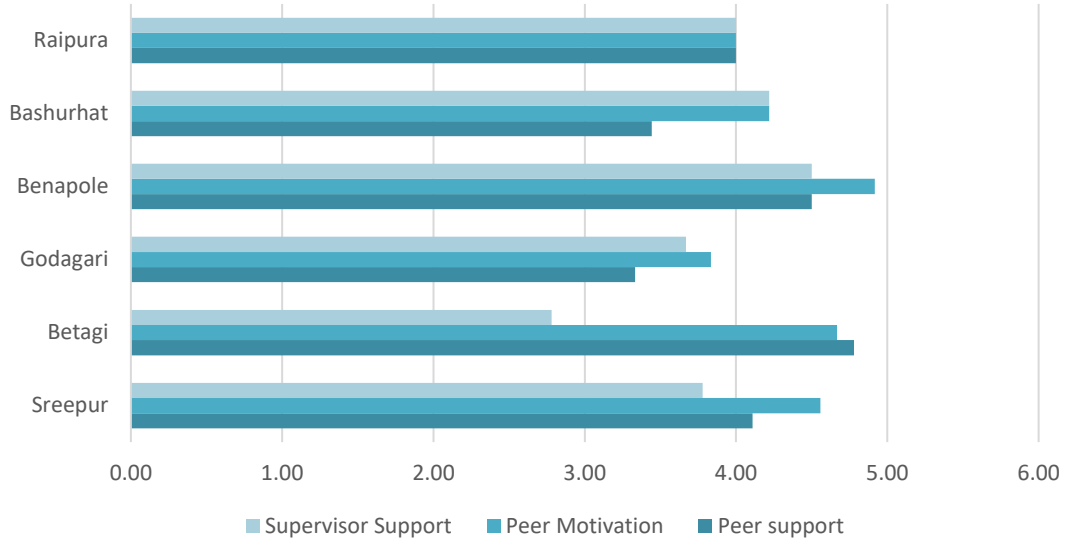
Perceptions of Social Support

To understand if perceptions of social support may have impacted the degree to which paurashavas achieved outcomes, I compared the mean scores of the participants' perceptions of social support they may have received in the work environment. Perceptions of supervisor

support were highest in Shaburat and Lenabol and lowest in Gibeta. Peer support and peer motivation, on the other hand, were highest in Lenabol, Gibeta and Pursee and lowest in Raidigari and Shaburat (Figure 19).

Figure 19

Comparison of Mean Scores by Social Support Category



Perceptions of the Enabling Environment

Participants were also asked to evaluate the strength of their enabling environment to provide insight into how external forces may have impacted their opportunity to use their learning. A five-point Likert-type scale related to the perceived strength of the different elements was used (1 = very weak to 5 = very strong). While all paurashavas perceived government and financial support to be low, between group comparisons of the means showed differences between the paurashavas with Gibeta reporting lower perceived government support (M = 1.0, SD = 0) and financial support (M = 1.0, SD = 0) than other paurashavas where the mean scores ranged from 2.0 to 4.0 for government support and 1.67 to 3.33 for financial support. At the same time, the mean scores also showed Gibeta as having the highest level of

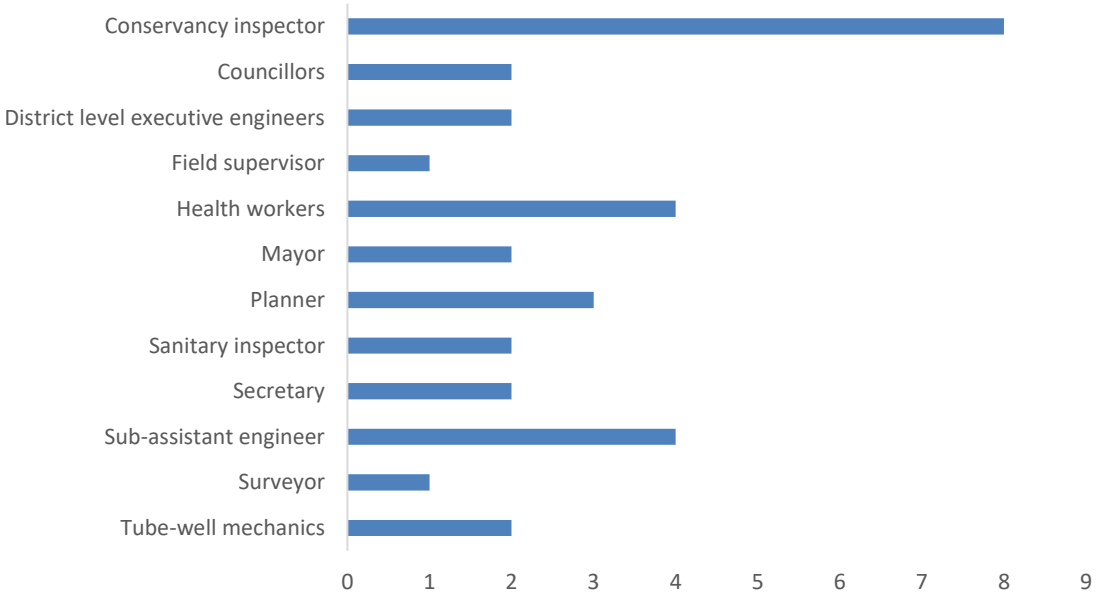
perceived skills and capacities (M = 5.0, SD = 0) with Shaburat and Lenabol perceiving themselves as having the lowest (M = 2.0, SD = 0 for both). While the data indicated that perceptions among the paurashavas appear to be different, because of the small sample size, it is not possible to say that the differences are statistically significant. In addition, were no supporting qualitative data to provide insight into how they perceived their environments differently or how the perceived differences may have impacted their ability to transfer their learning other than that, in the case of Gibeta, they may simply not have had much opportunity to use the training.

Perceived Utility

To assess the perceived utility of the training, participants were asked if any of their colleagues could benefit from the same training they had received. Figure 20 illustrates the frequency of the responses.

Figure 20

Types of Participants Recommended to Take the CWIS Workshop



Phase II Summary

Table 9 summarizes the positive and negative findings for Phase II as well as the between case comparisons.

Table 9

Summary of Phase II Findings

Positive Findings	Negative Findings	Comparative Analysis
• All paurashavas reported having shared with they learned with key stakeholders.	• Perceptions of financial support were negative across all paurashavas (N=16) (*M* = 2.44, *SD* =1.03). • Perceptions of government support were low across all paurashavas (N=16) (*M* = 2.38, *SD* =.96).	• Perceptions of post-training peer and supervisor support differed between paurashavas with Shaburat and Lenabol having the highest perceived supervisor support and Gibeta with the lowest. • Perceptions of socio-cultural acceptance, institutional arrangements, financial support and government support differed between paurashavas though it is unclear how the elements impacted their ability to transfer
• All paurashavas reported taking action to increase public awareness of FSM.		• Gibeta ranked itself higher than Shaburat and in terms Lenabol in terms of skills and capacity
• 95% of participants perceived the training as very helpful to extremely helpful to their role in implementing FSM.		
• Perceptions of the legal and regulatory framework were modestly positive (*M* = 3.87, *SD* =.719).		

- All respondents recommended colleagues take the training

Phase III

Three goals guided the data collection and analysis at this stage. The first was to validate self-reported achievement of action plan items. The second was to obtain a deeper understanding of the factors that facilitated or hindered their success. The third was to compare the results of each paurashava to understand the combinations of conditions that led to successful outcomes. To this end, data collection in Phase III involved entirely qualitative methods: direct observation, semi-structured focus group discussions and interviews, and document analysis (Yin, 2016). Descriptions of the findings for each paurashava -Arupai, Lenabol, Gebati, Pursee, Raidigari, and Shaburat are described next.

Arupai

The conversation with the team at Arupai involved the mayor and the team members gathered around the mayor's desk at the same time. While having the mayor present during the discussion may have restricted participants' ability to share their true opinions, there appeared to be a good deal of camaraderie among all participants, and they seemed to speak freely after the conversation with the mayor. The following describes the analysis of the meeting.

Key Findings

Observations at Arupai confirmed that the team had met the Theory of Change objectives at three months and were well on their way to achieving the six-month objectives. While not in the exact time frame indicated in their action plans, they reported that they had held meetings to inform the mayor, the council and local stakeholders, and a number of actions were being taken to begin implementing FSM. For example, community members and the town level committee

were advised that illegal connections from septic tanks to drains will no longer be allowed. A site for the fecal sludge treatment plant had been identified, a requisition for the land was in process, and discussions with the project director on how to optimize the site were underway.

A key strength for this team was their shared vision. In the words of one participant, "if we want to develop our country, we have to follow this way." In their opinion, it is the first step in being able to implement FSM because "without mentality, nothing can work." The mayor was key to this shared vision. He explained that when he was elected he had wondered how he could improve the lives of the people, so when the training was offered he saw FSM as the opportunity he was looking for. That the training aligned with the mayor's strategic vision meant that his staff would have not only the opportunity, but also the encouragement to use the training. Of note is that the mayor was interested enough to take the time to attend the field visit to Lakshmipur FSTP during the training. Privately, one participant did note that FSM was not necessarily the highest amongst competing priorities, however.

A high degree of perceived social support at a variety of levels was evident in Arupai. In addition to the mayor's support noted above, the team itself also supported each other: "Day-by-day we work together. We come to his office…I discuss with the engineer and we all … work together." While the data from Phase II indicated that socio-cultural support from the community was neutral (M =3.0, SD =0), comments in the interview made it appear otherwise. According to the team and the mayor, the local people are very "inspired and interested" and "ready to pay for themselves."

Self-efficacy for this team was also high. When asked if they were confident they could do it, the team emphatically replied, "We are so much confident!" Bonded by their mentality, the team worked closely together. They met in the office daily, and when they faced problems,

they said they referred back to the plan. Their resilience in the face of challenges can be seen in the comment, "Everything is a long process, but we are so much confident that we can implement this plan." They saw success as facilitated by a coordinated approach:

> By combining when we work, the plan will be successful. Paurashava, DPHE all … have to work together. They will have to supply drawings, design, plan. We will have to implement. We will have to encourage people. This is the charm."

As the mayor pointed out, once they have land, "other problems, [are] maybe no problem."

Perceptions of the utility of the training were strong. First, they felt the content was useful. One participant said, "We [didn't] know about FSM and solid waste management. After the training, we [learned] a lot about this method and this is helpful to us to convince the local community people." They also found the training materials useful. When asked if they had kept them or thrown them away, the response was "No. No. We keep it! We keep everything!" They then proudly produced the folders with all the materials. They had adapted their action plan and had prepared a household survey using the same questions provided in the training.

Asked about what aspects of the training itself had helped them, two themes emerged. First, they found the participatory nature of the training to be engaging: "entertain[ing], interesting, learning, sharing, caring. Everything was okay. Very interesting, very interesting." More important, however, was the field visit. Through the training they learned about the method, but it was the field visit that motivated them most: "The field visit was very informative." That a paurashava similar to their own could successfully implement FSM was so inspirational that they wanted to become the model paurashava for future cohorts of the workshop.

Interestingly, the follow-up visit itself was motivating. One participant shared, "when we knew she would come, I was studying." Asked how ITN-BUET could further support them after the training, the response was "more exposure visits" and creating a social media group.

Summary of Key Findings

Table 10 summarizes the key findings for Arupai.

Table 10

Key Findings for Arupai

Actions Taken	Conditions/Outcome	Indicator of
• Town level meetings have been held	3-month outcome	Motivation to transfer
• Land acquisition in progress	6-month outcome	Supervisor support
• Illegal drain connections banned	6-month outcome	Supervisor support
	• Mayor's support meant team had an opportunity to use the training	Opportunity to use
	• Team is motivated and confident they can implement FSM	High motivation and perceived self-efficacy
	• Training and training materials were perceived to be very useful	High perceived utility
	• Participants enjoyed the participatory nature of the workshop	High satisfaction with the training methodology
	• Participants support one another and have a shared vision	High degree of peer support
	• FSM aligns with mayor's goals, but is not first priority	Strong supervisor support
	• Follow-up activities should include more exposure visits and a social media group	Gap in follow-up support

Lenabol

At Lenabol, we met with the mayor and the team separately. The conversation with the team was held in the Assistant Engineer's office around his desk, but the discussion ended up being primarily between us and the Assistant Engineer. When we tried to elicit opinions from the subordinates, they tended to reiterate what their superior had said, so there was little to no diversity of opinion. Our conversation with the mayor was similar. We met in the mayor's office seated in rows before him. The mayor spoke for 80 minutes, but did not answer many questions related to the training. He did provide much insight into his frustrations with the central government and with training in general, however. A third discussion was held with a representative of SNV, which is actively engaged in helping the paurashava construct the treatment plant and build community awareness. The following themes emerged from the discussions.

Key Findings

Lenabol was one of the first teams to share that they had achieved the early goals in the action plan. A meeting was held with 50 members of the Town Level Coordination Committee (TLCC) although the mayor was not present. At the meeting the health hazards of illegal connections was discussed and emphasis was given to the importance of fecal sludge management, and how it will be implemented. A rally to increase public awareness of sanitation was held on Global Handwashing Day though it did not focus on FSM specifically. Land had been acquired and designs had been drawn up for construction of the treatment plant. Additional training on landfill and FSTP design and estimation and contracting to consultants had been provided to the paurashava engineers. These early successes could not all be attributed to the training, however. For example, the land had been procured prior to the training and the rally

was organized under the UGIIP project. In fact, SNV had been leading the implementation of FSM in Lenabol since 2018. Activities organized by SNV included a baseline survey of 6000 households, occupational health and safety training for emptiers and formative research to inform the development of the behavior change campaign strategy.

Because land had already been acquired and SNV had been actively working with the paurashava, the opportunities for participants to apply their learning were immediate. SNV reported that the paurashava had signed an MOU with SNV, provided them with office space within the municipal buildings to facilitate collaboration, and that they were regularly working together on issues.

When asked if the team had referred to the training materials since the training, they replied that they had not, other than to use their action plan as a general guide. Asked if they had kept the materials, the sanitary inspector claimed to have them stored in her office, but there was no see evidence of that. However, they did say that they planned to refer back to the materials once they begin awareness raising activities, such as meetings and rallies in the community. According to the mayor, who acknowledged that his staff had not told him anything about the workshop, most training is not relevant:

> There are trainers just like you who come here… What you offer in the training isn't realistic for us. We don't have the infrastructure required. You give training after training, but nothing happens in reality. The main thing here is raising awareness. We should find out what the inhabitants want here."

Of note is my observation that a book about CWIS stakeholder engagement was sitting on the Assistant Engineer's desk.

While there was a sense that the training had increased the team's confidence in the process overall, they were unsure that they would be able to convince citizens to pay for the desludging, and felt that there would need to be a blend of top-down and bottom-up approaches to be successful. For example, laws and penalties for violation of the laws would need to be in place and subsidies would have to be provided at the beginning to encourage compliance. The mayor, in particular, appeared to be at a loss as to how to motivate citizens: "I'm always scared about my actions and my responsibilities and limitations to serve the people…. I'm all for development, but you come up with something that is possible for me. Otherwise, I am helpless."

Interestingly, despite the progress they had made in the paurashava, the Phase II data revealed that participants' perceptions of their overall skills and capacities was quite low (M= 2.0, SD =0), especially when compared to the perceptions of the other paurashavas. This might be explained by the fact that Lenabol was well into the implementation and they were now recognizing the limitations of their capacity, whereas other municipalities with higher scores had yet to start implementing. Still, their confidence remained high, and they were motivated to handle challenges "step-by-step."

Mean scores from the Phase II analysis revealed that the team perceived a high degree of supervisor support (M =4.57, SD =.19) and peer support (M = 4.71, $S D$=.30) in terms of making sanitation a priority. These statistics were corroborated in the interview with the representative from SNV who said that the mayor was very supportive of SNV's work to promote FSM and that the teams met regularly to discuss issues. There was some discrepancy between the staff and the mayor's perceptions of socio-cultural acceptance and government support, however. While the team felt there was considerable socio-cultural acceptance (M = 4.0, SD =0) and that the importance of implementing FSM was well-received at the Town Level Coordination

Committee meeting, the mayor disagreed: “I have done a lot of things for them before. But they didn't last because of the non-cooperative minds of the people. They don’t even invest or use the minimum existing waste management systems.” Moreover, while the team felt that government support (M = 4.0, SD = 0) was relatively high , the mayor believed the government did not provide sufficient support to paurashavas:

> The government is really unhelpful regarding paurashavas. We even face difficulties regarding our salaries. In such situation, it's not easy for us to take steps for cleaning. We know the basics but it's not always possible to make them reality.

Overall, there was a sense that the design of the training had been highly effective in preparing them for the implementation with the group work cited as being particularly helpful. In fact, some felt that it would be better if there were even more group work. In particular, the lessons on the survey, collection and transportation and treatment technologies were felt to be very useful.

Summary of Key Findings

Table 11 summarizes the findings for Lenabol.

Table 11

Key Findings for Lenabol

Actions Taken	Conditions/Outcome	Indicator of
A TLCC meeting was held to inform stakeholders about the importance of FSM	3-month outcome	Motivation to transfer
FSTP under construction	Longer term outcome	Opportunity to use
		NGO support Supervisor support

	Perceptions of supervisor support are positive, but mayor was uninterested and even negative about the training	Strong supervisor support for project, but weak support for the trainees post-training Mayor had been motivated prior – either by the project opportunity or a previous exposure visit
	Perceptions of peer support are positive	Strong peer support
	Perceptions of self-efficacy in terms of process are high, but low in terms of mobilizing the community, especially for the mayor	High self-efficacy for process, but low for social mobilization Gap in training content for social mobilization
	Perceived utility of the training content was high, but of the training materials was low	High perceived content validity Low perceived utility of training materials
	The team thought the training methodology was effective, especially the group work	Training perceived as useful
	Perceptions of skills and capacity within the enabling environment are low	Recognition of gaps in capacity possibly due the fact that they were already implementing and recognized what needed to be done

Pursee

At Pursee, we met with team briefly on their own and then together when the mayor arrived about 15 minutes later. The conversation with the team was held in the mayor's office around his desk, and the discussion was casual with all team members freely speaking even with the mayor present. The team was excited to share their accomplishments since the training. Themes arising from the discussion follow.

Key Findings

At the end of the training, the Pursee team was highly motivated to transfer their learning (M = 4.67, SD =.14). Five months later, they had acted on their action plan item to discuss FSM

with the mayor and councillors, but had not yet had the TLCC meeting nor begun raising awareness in the community. Despite that, they were successful in motivating the mayor and councillors to acquire land for the treatment plant. Going one step further, a committee had identified a tract of government land, and a request had been sent to the ministry to purchase the land. Once the land is in place they planned to arrange a meeting with the TLCC and Ward Level Coordination committee. Other actions that were taken included requiring ten pit emptiers to take a workshop on occupational health and safety.

As a result of the training, an attitude shift had occurred and recognition of the necessity to do something to manage fecal sludge to protect public health and save the environment had become clearer. T he mayor explained, "At first when we heard about the project, we felt a little awkward about it …. But soon after the training, we realized that it's not something to be shy about. It's in fact very necessary for us." As a result of this change in perspective, the mayor had made FSM his "topmost priority." He said, "At first, was a little anxious about the project, but afterwards it felt so good. I felt really excited about it. I dreamt of a clean environment." According to the team members, the mayor was even more enthusiastic than they were. When they told him they needed land, he along with seven councillors immediately took action to search for, select a property and make arrangements to purchase it. Perceived utility was evident in the fact that one of the team members claimed to have reviewed the materials after the training, but also in the fact that each of them had brought a folder containing their materials with them to the meeting and proudly shared them with us.

The team had strong support from the mayor. In his own words, he was committed to supporting his team "as long as they need, be that financially, officially or personally. They might get obstructions in the process, but I will try to make it easier for them" even if that

involves forcing some things on the community. In addition, because of their shared vision, the team also enjoyed strong peer support. Because of their interest in FSM, both the engineer and the secretary had visited FSTPs in other districts on their own time.

Because land is not yet available, the team had not had much opportunity to apply the full extent of what they have learned, but they were aware of what they needed to do next in terms of engaging stakeholders and were anxious to start. As one person explained:

> We are ready for it mentally, we just want to see it get materialized soon… What we think is if we can strengthen our backgrounds, then it will be easier for us to include mass people. There is a survey going on right now… It is not related to FSM though. It's for another project, but we think that will be helpful for us too… We will incorporate that survey with the household survey for FSM.

The team believed that the training provided them with the basics that will get them started on the implementation process. As one person said:

> we don't know when we will start the implementation. We have no idea where that might go. We will know when the problem arises, but we believe that whatever the difficulties or the situation may be, we will solve that.

Summary of Key Findings

Table 12 outlines the key findings for Pursee.

Table 12

Key Findings for Pursee

Actions Taken	Conditions/Outcome	Indicator of
Content of the workshop was discussed with the	3-month outcome	Motivation to transfer Evidence of outcome

mayor and council members		
Land acquisition was in progress	6-month outcome	Supervisor support
Pit emptiers were taken for OHS training	6-month outcome	Motivation to transfer
	FSM is high priority for the mayor	Strong supervisor support
	The training resulted in an attitude shift and shared vision among team members	Effective training design Strong peer support
	Team members remain motivated to implement	High motivation
	Perception that not much can be done until the land acquisition is complete	Perceived opportunity to use is low
	Training materials kept and reviewed	Perceived utility of training materials is high

Gibeta

In Gibeta, we met with the sanitary inspector, the administrative officer and the sub-assistant engineer for DPHE. A number of council members were also at the meeting. The mayor and the assistant engineer who had attended the training were unable to attend the meeting, which likely allowed the participants to speak more freely than they may have otherwise. The conversation with the team was held in the boardroom around a large table. About halfway through the discussion, we learned that two NGOs, Slope Bangladesh and Hope for the Poorest had been working on sanitation-oriented activities with households and local pit emptiers. Luckily, they were able to join the meeting so that we could learn about their activities in the community.

Key Findings

While the participants' motivation to transfer was very high (M = 4.83, SD =.14) at the end of the training, the team was unable to accomplish much more than awareness raising with the mayor and council. In their words, "we received the training, and then came here. We had a

meeting after that, but everyone was not present." In the meeting with the mayor and councillors, they shared what they had learned and hypothetically what should be done, who should be in charge and how they should proceed, but it was felt that nothing could start until the land had been selected. While they had saved the action plan they produced at the end of the training, they had not looked at it since. They did share what they learned with Slope Bangladesh. They also asked for help to find a suitable site from the district commissioner, but ultimately the decision to move forward was left with the mayor and the councillors. Since that time no other actions have been taken. Discussions may have taken place between the engineer and the mayor, but they had not been informed of that.

According to the team, FSM was not high on the list of priorities for the paurashava. Roads, culverts, street lights, conservancy and drains all took precedence over FSM. Because it was felt that until land had been acquired, nothing could be done and therefore, there was no opportunity to use the training. As a result, while they had saved the training materials and had looked at the presentations, they had not reviewed the workbook or reflection journal at all.

While three potential sites for the FSTP had been identified, the team explained that did not know how to select the best one. After some discussion with the ITN-BUET investigator, one site appeared to show some promise as a potential site. It was government land about 3 km from the town, with a wide access road. The land was also next to a brick kiln owned by the mayor. While promising, there was some doubt that they could engage him in the process because he is a "very busy man." Of interest, however, is the fact that Gibeta had the highest mean score (M = 5.0, SD =0) of all paurashavas in terms of their perceptions of the skills and capacities element of the enabling environment. Since implementation had not yet started, this

score might be explained as the overconfidence novices often experience when they don't yet know what they don't know (Ehrlinger, Johnson, Banner,Dunning, & Kruger, J., 2008).

As a local businessman in addition to being mayor, the mayor had obligations beyond his job as mayor. As a result, although the staff believed the mayor was highly motivated to serve the people, they perceived minimal support for implementing FSM both in terms of his time and guidance. This result corroborated the data collected in Phase II where the mean score for perceptions of supervisor support was 2.78 (*SD* =.19). Perhaps a reflection of the low perceived supervisor support, of all the paurashavas, Gibeta was the only one to suggest that the mayor take the training. In fact, one of the participants had suggested this to me during a break during the training. Conversely, perceptions of peer support (*M*=4.78, *SD* =.15)and peer motivation (*M* =4.67, *SD* =.27) to use the training were quite high and the fact that they did attempt to motivate the council may be a reflection of that. While it was not perceived as support in the FSM implementation process, social support was also available to the paurashava through Slope Bangladesh. They were aware of a household survey related to sanitation being conducted by Slope Bangladesh, but did not try to align the Slope survey with the data they could use if they did begin implementing FSM, nor did they try to align activities Slope was engaged in with pit emptiers. According to one participant, Slope "usually [works] on their own, but they keep us posted very often."

As we experienced in other paurashavas, our visit to Gibeta was in itself motivating to the team. After we visited the potential FSTP site and my colleague affirmed it as having high potential, the energy of the team and a few council members appeared to be reignited. Several people expressed an interest in revisiting the topic again with the mayor. They recommended that we deliver a sensitization program for the councillors and TLCC members and a specific

presentation for mayors that includes an exposure visit to a FSM plant. For themselves, they requested additional training on how to mobilize the community.

Summary of Key Findings

Key findings for Gibeta are summarized in Table 13.

Table 13

Key Findings for Gebati

Actions Taken	Conditions/Outcome	Indicator of
Formal and informal meetings held to discuss implementation	3-month outcome	Motivation to transfer
Land identified but acquisition not prioritized	Until land is acquired no additional actions will be taken	Motivation to transfer, but no supervisor support
	Participants recommend that mayor, council members and TLCC take the training	Training design perceived as effective Perceived lack of social support
	Perception that not much can be done unless land is acquired	Minimal perceived opportunity to use
	NGOs are currently active in FSM activities, but little coordination between trained participants and NGOs	Lost opportunities for synergies
	More information on social mobilization requested	Gap in training content or follow-up support
	Participants were motivated by our visit	Follow-up support is beneficial

Raidigari

Due to the COVID-19 outbreak, I was called back to Canada on the day the team was supposed to meet with the participants at Raidigari. As a result, only my ITN-BUET colleague was able to attend. Later, I learned that he had met with the workshop participants in the

mayor's office around his desk. The discussion was friendly and team members spoke freely. The session was recorded and photographs of the meeting and the visit to the potential FSTP site were taken. Themes that emerged from the discussion are discussed next.

Key Findings

At the end of the training, the Raidigari team was highly motivated to transfer their learning (M = 4.75, SD =0). What motivated them was partly a responsibility to serve the community, but as one person commented, "mainly we got it from you people. We learned things and then implemented them here." In fact, they did take action. On returning to the workplace, the team shared what they had learned at the council meeting. In particular, they discussed the importance of stopping illegal connections and of conducting a household survey to determine the number of septic tanks so that they could detect illegal connections. In addition to the formal council meeting, a number of informal meetings took place and there was a sense that a shared vision of an improved environment would be beneficial for the upcoming election in December. The mayor had already taken some steps to stop illegal connections, but the council planned to wait for full-scale public awareness until the implementation was further along. A site for the FSTP had also been finalized. While discussions had been underway prior to the training, the actual transaction was completed after the training, and there was a sense that "some of [the] work got easier because of the training."

Supervisor support was evident in the fact that the Raidigari mayor was one of two mayors who attended the final day of presentations at the training. In addition, according to the team members, the mayor was pivotal in facilitating the donation of the land for the FSTP. While roads, drainage, water supply, and lighting were prioritized over FSM, a firm decision had been made to move forward. There were no NGOs working in sanitation within the paurashava

at present, so there was no external support for their implementation. However, internally there was peer support. According to one person, "The surveyor is very helpful. The accountant also helped a lot. Though the paurashava has different posts, everyone has to work together in a project."

When asked about whether they had referred to the workbook after the workshop, team members claimed to have kept them, but not referred to them. One participant claimed to have reviewed the presentations, however.

While the workshops participants enjoyed the workshop, there was a sense that it did not sufficiently prepare them on the technical aspects of implementation, so they felt unprepared for what comes next. As one person stated, "We liked it. The steps were good, but the technical portion was insufficient." When it was explained that they would receive the additional training related to plant design, one person responded, "But what good will that do us? We need to learn before the work starts." In addition, it was felt that while having an opportunity to observe a functioning treatment plant was useful, the travel required to get there was too long, and that a visit to a closer site would have provided more time to learn about the technical side of the plant during the visit.

The concept of capacity to transfer refers to trainees' perceptions of the resources available to them for transferring their learning in the workplace. For Raidigari, motivation was impacted by the fact that their salaries were not always paid. Physical resources were also in short supply. For example, when asked how the training could be improved, it was mentioned that they could use a computer with a Wi-Fi connection to run the project.

Regular follow-up was perceived to be critical if they are to implement the project successfully. In addition to more technical training, one person commented, "We need follow-ups regularly. Supervision and monitoring are also necessary."

Summary of Key Findings

Table 14 highlights the key findings for Raidigari.

Table 14

Key Findings for Raidigari

Actions Taken	Conditions/Outcome	Indicator of
Formal and informal meetings held to discuss implementation	3-month outcome	Motivation to transfer
Land acquired	6-month outcome	Motivation to transfer Supervisor support
	FSM is lower priority than other infrastructure projects, but mayor was pivotal in acquiring the land	Supervisor support
	Support received from colleagues who had not taken the training	Perceptions of peer support are high
	Training made land acquisition easier	High perceived utility
	More technical content requested	Gap in training content
	Follow-ups and monitoring are considered necessary	Gap in follow-up support
	Physical and financial resources in short supply	Low perceived capacity to transfer

Shaburat

As the last paurashava on the schedule, the Shaburat visit was also negatively impacted by the COVID-19 crisis. Neither myself nor my ITN-BUET colleague were able to visit in person. An online meeting was held in Zoom, but while all the workshop participants were there, only the Executive Engineer spoke. There was no opportunity to speak with the Mayor

and it was not possible to visit the proposed plant site. In terms of being able to triangulate the data, Shaburat was one of the paurashavas to send photographs, however. Themes that emerged from the discussion are discussed next.

Key Findings

The Shaburat team was very motivated to transfer their learning (M = 4.83, SD =.14) at the end of the workshop, and was one of only two paurashavas to organize a meeting to share their learning within two weeks of the workshop. As opposed to Lenabol, who held their meeting according to a pre-set schedule, however, the Shaburat team organized a special meeting to share their learning. Furthermore, not only did they invite the mayor and councillors, they also included the entire paurashava staff, civil society representatives, local business people, and social workers as participants. In the meeting, they thoroughly discussed the details of FSM implementation and tried to emphasize its importance. As a result of the meeting, the mayor took a number of steps at the field level and ordered initiatives to clean drains, canals and roads. They also put a stop to illegal drain connections and informed households that they would be fined for repeat offenses. Land had been purchased prior to the training, so they were "ready to construct the FSTP at any time." The tendering was complete, and they were only waiting for approval on the bid from the funders to obtain the work order.

The mayor was perceived to be extremely supportive. According to one person, "It's a blessing that our mayor is very motivated," and there was a shared vision and sense of commitment on the council:

> Our mayor and councillors are mentally prepared for it. They are very enthusiastic about the project and that is why they started taking initiatives at the field level. If you were here, you could see that we are a lot cleaner than other towns because of that. So now if a

FSTP is built and we get the tools and equipment for FSM, we think we can set a good example from here.

Socio-cultural acceptance among community leaders also appeared to be strong. When they discussed the importance of FSM with civil society groups, "everyone … took it very seriously…. We can say that everyone has realized the importance of the matter." Perceptions of peer support were also high: "There's no lack of confidence or seriousness from the mayor. At the same time, we are also aware and ready. If the project starts here, and we start doing it organizationally, we will all cooperate."

However, there was a recognition that socio-cultural acceptance was critical, "The stakeholders are our main concern. I think stakeholders have a very big role to play here." In terms of external support, that there were no NGOs involved in the sanitation sector in the paurashava to date was perceived to be a barrier, but there was an understanding that DPHE would engage a NGO to facilitate public awareness of FSM.

Perceived self-efficacy amongst the team members was high at the end of the training (M = 4.38, SD =.14), and remained high five months later, but there was a recognition that they would need additional training and support. This was evident in the lower mean score relative to the other paurashavas in terms of their skills and capacities. Areas where they felt they could use additional help included raising public awareness and managing the diverse waste streams at the paurashava level.

That the Executive Engineer perceived the training to be useful is evident in the fact that he felt there were other people who should also attend the training: "For example, the inspector got the training, but he has a supervisor and other supporting staff – the sub assistant engineer, water super, conservancy supervisor, etc…..If they had had the training, it would have been huge

help for us to implement the project better." In terms, of the utility of the training materials, when asked if they had referred to the materials since the training, he said, "We looked at the materials, not a lot, but we did. I did it on my own. I think others did that too, but maybe not everyone."

When asked about the training design, there was a sense that every lesson was important because they were all interconnected, but that the field visit was highly informative and motivating. While the speaker had not been able to go, others had told him they "loved the experience very much … and thought it was amazing."

On at least two occasions, comments were made that once the project was launched they would need "your knowledge, support and help."

Summary of Key Findings

The key findings for Shaburat can be seen in Table 15.

Table 15

Key Findings for Shaburat

Actions Taken	Condition/Outcome	Indicator of
A special meeting was held to share learning with mayor and civil society representatives	3-month outcome	Motivation to transfer
Land previously acquired; tendering for construction is now complete and awaiting approval from funders	6-month outcome	Opportunity to use because of prior decisions Mayor was motivated before the training
Illegal drain connections banned		Action taken Strong supervisor support
	Mayor and council members are committed	Strong supervisor support
	Strong support from civil society members	Perceptions of social support

	Strong organizational commitment to implement	Perceptions of peer support are high
	Recognition that others should take the training to facilitate the implementation	High perceived utility
	Training content was all useful but materials were minimally reviewed after the training	High perceived utility of th content Low perceived utility of the training materials post-training
	Need help in raising awareness	Gap in content or follow-up support

Comparative Analysis

Tables 16 and 17 present a cross-paurashava analysis of the outcomes achieved by each paurashava and the conditions that might explain the outcomes. Outcomes are those predicted in the theory of change up to six months post-training, some of the action items teams had set for themselves, and some that were observed, but not predicted. Conditions include the a priori factors identified literature review, specifically those related to perceived self-efficacy, motivation, perceived utility, perceptions of the training design and follow-up, and perceptions of the social support received in the workplace. Other factors, such as conditions in the external environment that hindered or facilitated success emerged from the investigation are also listed. Each condition or outcome is described as either present or absent and coded with 1 as being present and 0 as not being present. Dashes indicate that presence or absence was unclear. To be considered present, mean scores from Likert-type survey items had to be greater than 4.0 and supported by the qualitative evidence uncovered by the email interview, observations, interviews, and focus group discussions. The mean score of 4.0 was selected as the cut-off point because it more strongly suggests the presence of an outcome or condition. However, in some cases there were discrepancies with what the qualitative data revealed. For example, the mean

scores for social support were less than 4.0 for Shaburat and Pursee, but on meeting the team in their workplace, we found them to be highly supportive of one another. In those situations, the qualitative data overrode the quantitative data.

There was little difference between the paurashavas at three months (Table 16). All teams left the training with high self-efficacy, high motivation to transfer, a high degree of satisfaction with the training, and high perceived utility of the content. There were some differences in their perceptions of the post-training usefulness of the training materials, but this did not seem to impact the outcomes. All teams shared their knowledge and took some action toward achieving the goals they had set in their action plans.

Table 16

Outcomes and Conditions 3 Months After Training

	Conditions					Outcomes	
Paurashava	High Self-Efficacy	High motivation to transfer	High satisfaction with training design	High perceived content validity	Perceived utility of training materials	Shared Knowledge	Achieved action plan goal
Arupai	1	1	1	1	1	1	1
Lenabol	1	1	1	1	0	1	1
Pursee	1	1	1	1	1	1	1
Gibeta	1	1	1	1	0	1	1
Raidigari	1	1	1	1	0	1	1
Shaburat	1	1	1	1	0	1	1

Differences were observable observed at six months. Some differences could be explained by the fact that some of the paurashava were further ahead in the process. Two paurashavas had acquired land prior to the workshop, and in one paurashava a NGO was leading the implementation. The biggest difference between them was the support they received from the mayor. Mayor support was low in the single case where effort taken toward acquiring land

appeared to be stalled. Table 17 outlines how the paurashavas conditions and outcomes compared with one another.

Table 17

Outcomes and Conditions 6 months After Training

	Conditions								Outcomes		
Paurashava	High mayor support	High perceived peer support	Materials used as job aids	Sustained motivation	Socio cultural acceptance	High Perceived Skills	NGO Support	Training motivated mayor	Land Acquired	Illegal connections banned	Community engaged
Arupai	1	1	1	1	1	0	0	1	1	1	1
Lenabol	1	1	0	1	0*	0	1**	0	1***	1	1
Pursee	1	1	1	1	0	1	0	1	1	1	1
Gibeta	0	1	0	0	1	1	1	0	0	1	1
Raidigari	1	1	0	1	0	0	0	1	1	1	1
Shaburat	1	1	0	1	1	0	0	1	1***	1	1

* The mean score from the participants was 4.0 whereas the FGD and interview with the mayor revealed a negative perspective

**NGO was leading the project. A plan existed, but it was not developed by the paurashava

***Land acquisition had occurred prior to the training

Summary

In Chapter 4, I shared my analysis of the findings from Phases I, II, and III. Predicted outcomes were achieved by most, but not all of the paurashavas. Characteristics of the learner, the training design and the workplace theorized in the literature all appeared to be contributory factors to the successful and unsuccessful outcomes observed. Other factors not well-explained by the literature also appeared to contribute to the results, particularly the impact of socio-cultural and political forces on training transfer. In the next chapter, I discuss my interpretation of the results.

Chapter 5: Discussion

In this chapter, the results are discussed from the perspective of the research questions, literature review and conceptual framework that informed the investigation, and are organized by research question. First, I will discuss the extent to which participants were able to achieve the outcomes predicted in the theory of change by six months after the training as well as well as any additional outcomes I discovered. Second, I will present the factors that appeared to facilitate or hinder the desired outcomes. Finally, I will share my findings on the combinations of conditions that I found among the participants of paurashavas that were successful in achieving the outcomes.

Research Question 1

The first research question asked about the extent to which participants achieved the outcomes identified in the theory of change by five months after the training. As a predictive model, the theory of change developed for the *FSM in Cities: An Element of CWIS* workshop proved to be quite accurate up to six months. To achieve the long term sustainable goal of safely managed and equitable sanitation and hygiene for all, the model identified a number of outcomes that would have to be met. Key assumptions, grounded in the theories related to training transfer and adoption of innovation, guided the design of the intervention. If all key assumptions were true and the training design adhered to recommendations in the literature, it was expected that by six months participants would have been motivated to share their knowledge with others and begun to take meaningful action toward implementation. Table 18 summarizes the short-term results. Success was defined as having a mean score greater than 4 on a scale of 1 to 5, a large effect size, or total frequencies within primary categories at 75% or greater. Because all of the immediate and three-month outcomes were met, and several paurashavas were well on their way

to achieving the six-month outcomes, I concluded that the training had been very effective in terms of helping participants achieve the predicted outcomes to the accountability line.

Table 18

Achievement of Outcomes to the Accountability Line

	Outcome	N	Description		Successful?
Immediate Outcomes	Post-training perceived ability to demonstrate the learning outcomes	24	$M = 4.30$, $SD = .38$		Yes
	Motivated to transfer	24	$M = 4.68$, $SD = .01$		Yes
	Statistically significant increase in perceived self-efficacy	24	$p < .001$ Effect sizes 4.49 to 8.78		Yes
	High satisfaction with training	24	$M = 4.75$, $SD = .53$		Yes
	Outcome	N	Description	% or #	Successful?
Outcomes Achieved by 4 Months	Shared knowledge of FSM with others	6	Mayor & Council	50%	Yes
			Mayor, Council & TLCC	33%	
			Councillors & TLCC but not mayor	17%	
	Accomplished items in action plans	6	1 week action items	100%	Yes
			Some 3-month items	83%	
	# of requests for follow-up support	6	Social media support	1	Yes
			NGO support	1	
			Additional training/FSTP visits	3	
	Suggested others take the training	6		100%	Yes

Not surprisingly, at six months differences between the paurashavas began to emerge. Table 19 summarizes the achievement of outcomes at six months.

Table 19

Achievement of Intermediate Theory of Change Outcomes

Outcome	N	Description	% Achieved	% Not Achieved	Unclear
Initiated land acquisition[a]	4	Not started		25%	
		In progress	50%		
		Finalized	25%		
Mayor took action because of the training	6	-	67%	33%	
Integrated action plan developed after the training	6	-	17%	66%	17%
Community awareness raising activities	6	Held a rally or public activity to promote sanitation	17%	83%	
		Moved to stop illegal connections	33%	67%	
		Discussed FSM with community members	50%	50%	

[a] Two paurashavas had acquired land before the training.

Research Question 2

The second research question sought to reveal aspects of the trainees' personal characteristics, the training design and the work environment that had facilitated or hindered achievement of the outcomes. As previously mentioned, the theory of change was based on key assumptions about the factors that facilitate or hinder training transfer. Grossman and Salas (2011) claim that the majority of issues related to training transfer can be framed in terms of inputs, outputs and conditions of transfer. The design of the intervention incorporated a number

of techniques to address the inputs and outputs, but little was done to enhance or mitigate the conditions of transfer. Described here are the themes that emerged from the data in terms of the factors that may help to explain the degree to which outcomes were achieved.

Trainee Characteristics

Characteristics of the trainee that can impact training transfer in the Grossman and Salas (2011) model are cognitive ability, motivation, perceived self-efficacy and perceived utility. Because an assumption was made that the participants were all well-educated professionals, no attempt was made to address cognitive ability in the intervention design. While cognitive ability may have facilitated transfer in that participants were able to achieve the learning outcomes, there is no evidence that it hindered the outcomes. For that reason, the focus in this section is on the relationship between the intervention and participants' motivation, perceived self-efficacy and perceived utility.

To reach the ultimate goal of achieving Sustainable Development Goal 6.2, both training transfer and diffusion had to occur as a result of the workshop. According to the literature, transfer is unlikely to transpire unless trainees are motivated (Burke & Hutchins, 2007; Colquitt et al., 2000; Grossman & Salas, 2011). Results from the analysis showed that participants were highly motivated. Mean scores on the pre-workshop survey indicated that motivation to learn amongst participants was high ($M = 4.54$, $SD = .42$). Immediately after the training, motivation remained high although there was no statistically significant increase. During the training, participants' sustained engagement in the activities, meaningful entries in the workbook, and comments such as "I didn't know about FSM before, now I do. I want to learn more about IRF and social mobilization" are all indicative of high levels of motivation. One design aspect that attempted to foster motivation was an emphasis on FSM as a solution to a critical environmental

problem. A focus on the human aspect of FSM may also have contributed to motivation. In the lesson on collection and transportation technologies, for example, we presented the technologies as a way to improve the lives of pit emptiers as opposed to simply a list of technologies that are available. That it had made an impact could be seen during the field visit when one of the questions asked was how the municipality had attempted to protect the livelihoods of pit emptiers. The high levels of motivation likely facilitated the post-training diffusion as well. Diffusion occurs when an intervention is successful in communicating an innovation to a subset of adopters, who in turn influence others to "consider, adopt, implement, and maintain the use of worthy innovations" (Dearing, 2009, p. 506). For this to happen, the transfer design had to find a way to reduce participants' uncertainty about the innovation, have credible others highlight the benefits of the innovation, and incorporate social pressure to adopt. That some mayors directly attributed the training to their motivation suggested that the training had played a role in diffusion.

Not everyone was equally motivated during the training, however. One participant felt that the group work was a waste of time, which might be a reflection of the fact the participant was expecting a more traditional lecture-based approach. Motivation has been shown to increase when trainees know what to expect and can see how the training will benefit them (Bates, et al., 2014; Salas et al., 2012). The pre-training brochure was intended to inform participants of what to expect from the workshop and enhance their motivation to learn by highlighting how the workshop would benefit them. However, because at the time of the training, the brochure was still only available in English, and it was handed out at the start of training as part of the materials package it is unlikely that the brochure was a motivator. It is not clear if any of the participants had even read it. (Of note, is that the same participant who felt the group work was

a waste of time later indicated that the workshop was extremely helpful to his role in implementing FSM. Unfortunately, we were unable to meet with this person to ask him why.)

A number of studies have shown small to moderate positive correlations between transfer and self-efficacy (Burke & Hutchins, 2007; Chiaburu & Lindsay, 2008; Velada et al., 2007). To this end, designers of the intervention must show how the innovation is different from the practice it is replacing, explain the innovation so that it is easily understood, and make the ramifications of adopting the innovation readily apparent. The innovation should also be made to appear economical and efficient. Because of the complexity and systemic nature of FSM, presenting the content by topic would likely have been overwhelming and difficult for participants to synthesize all the information and then implement. Therefore, a decision was made to present implementation as a process that is not only economical, but achievable using a step-by-step approach.

Analysis of the data collected in Phase I showed that increases in perceived self-efficacy of the learning outcomes were statistically significant ($p<.001$ for all outcomes and with large effect sizes ranging from 4.49 to 8.78). This result may be attributable to the number of techniques that were deliberately employed to increase perceived self-efficacy throughout the workshop. Using a task-based approach and providing practice in the thinking processes required at each step likely helped to build participants' confidence that they could do it. Evidence of sustained confidence can be seen in a comment made five months after the training: "We are so much confident!...We believe that whatever the difficulties or the situation will be, we will solve that." Another technique used to enhance self-efficacy was to democratize the learning environment so that participants felt comfortable with one another and could be guided through the learning process by the facilitators that were knowledgeable, but approachable. The

capacity and sincerity of the trainers was commented on by five of the participants when asked what they liked about the workshop. That this facilitated the outcome is evident in the comment:

> most of the trainers were …. almost the same age as us, so we could easily communicate with them. In fact, we probably talked more than they did. And because of that we learned more from our real-life experience and it helped us to understand the topic better.

Research has shown that both motivation during the training and transfer after the training are impeded if trainees do not perceive the training to be useful (Axtell, Maitlis, & Yearta, 1997; Lim & Morris, 2006; Velada, Michel, Lyons, & Kavanagh, 2007; Van der Locht, van Dam &Chiaburu, 2013). To ensure content validity, the design team worked alongside academics and practitioners. Several iterations of the workshop were produced and tested before delivery to the first cohort. Feedback on both the content and the activities were incorporated into the pilot workshop after every iteration. For the *FSM in Cities: An Element of CWIS* workshop, it appeared that the efforts had worked and participants saw the training as both relevant and useful. During the training participants were seen taking photographs of the slide presentations, discussing the content outside of class, and asking relevant questions, such as "What are the main challenges for paurashavas to prevent solid waste and fecal sludge pollution in the coming days?" Comments, such as " FSM could help improve our environment. I love learning about it," and "If [my colleagues] had had the training, it would have been a huge help for us to implement the project better," also indicate a high level of perceived utility of the content.

In terms of the training materials, however, while the intent was for the materials to act as job aids post-training, there was little evidence they were perceived as such. Most of the participants claimed to have kept the training materials, but few had referred to them since the

training, and only one team seemed to have recognized the opportunity to use them as templates. This lack of use may be partly explained by the fact that they were still at the initial stages of implementation and had not had an opportunity to use all the materials, however.

Training Design

In the Grossman and Salas (2011) conceptual framework, training transfer is facilitated by realistic training environments, error management, and behavior modeling training. Error management techniques were not intentionally included in the training design for the *FSM in Cities: An Element of CWIS* workshop, so they are not discussed here.

Simulations are scenarios designed to represent reality and are used to improve performance by providing structured opportunities to apply and practice the knowledge and skills that are required in the real world (Baldwin, 1992; Salas, et.al, 2012). Often used in the military and airline industry, simulations allow participants to receive context-specific support as they navigate through realistic scenarios (Salas et al, 2012). To simulate a real world environment, two case studies were created (later expanded to four). The case studies were based on data and experiences from real life municipalities that had implemented FSM, but were presented as fictional and given fictional names. The rationale for fictional case studies was so that participants would make decisions on the data at hand and not on prior knowledge of what was really done. Task-based exercises provided practice in decision-making, and real-world tools, such as a household survey and methods for calculating fecal sludge, were provided. Evidence that participants found the realistic training environment helpful is partly reflected in their high levels of perceived self-efficacy discussed above, and partly in the fact that one of the teams had used the action plan and household survey after the training. Other evidence was the statement by one participant that the training had made the land acquisition process easier. Many

participants note the participatory method of the training and the group work as being aspects of the workshop they liked, and 95% had responded that the training had been very to extremely helpful to their role in implementing FSM.

According to social learning theory (Bandura, 1977), perceived self efficacy is increased when participants are able to observe others perform the skills. Research by Taylor et al. (2005) has shown behavior modeling training (BMT) is an effective training strategy for improving workplace behaviors. While the training did not expressly follow BMT as a methodology, the core concept of providing models, both effective and ineffective, was incorporated into the training content in the form of examples shared in the presentations and in the visit to a functioning treatment plant. Practice opportunities, an important element of BMT, were provided in the form of tasks that the participants had to complete as they worked through the scenarios.

Of all the activities, the participants found the field visit to be the most important. In fact, more than 20% of participants cited the field visit as an aspect of the training they appreciated and a several participants mentioned more exposure visits, examples and documentaries as a way to improve the training. The fact that the FSTP was not particularly elaborate may have increased participants' perception that FSM was feasible in their own paurashavas. In addition, having the opportunity to speak directly with municipal staff at the field site provided a chance to hear about their experiences with implementation firsthand. Rogers (1983) asserts that *who* communicates an innovation is as important *as* how. Opinion leaders are the ones that have the power to influence others to adopt whereas change agents are the technical leaders of the innovation. In this situation, participants were likely motivated by hearing about their peers' experiences in implementing FSM.

Work Environment

The work environment is where control starts to shift away from the instructional designer although strategies to address conditions in the environment that affect transfer in the workplace do exist (Salas et al., 2012). In the Grossman and Salas (2011) conceptual framework, work environment conditions include transfer climate, support, opportunity to use and follow up. How each of these conditions may have affected outcomes for this case study is discussed next.

Transfer climate, which refers to whether trainees perceive the post-training environment as conducive to applying the learning, has been shown to directly influence outcomes (Burke & Hutchins, 2007; Salas et al., 2012). In the literature, this most often refers to constructs, such as social support from peers and supervisors, opportunities to perform, organizational policies and cues that prompt trainees to use apply their skills and consequences for not using what they have learned (Burke & Hutchins, 2007). Predictably, a supportive post-training environment has a positive impact on employees' mindsets, which in turn facilitates transfer (Burke & Hutchins, 2007; Salas et al., 2012). However, in virtually all of the articles I reviewed, training transfer was viewed through a corporate lens within developed nations, where companies invest in their employees as a means of improving their bottom line. With this focus, factors associated with training transfer are directed toward the trainee, the training design and on the organization itself. I found only one article that mentioned the importance of assessing external factors (Dormant, 1999) and even that article highlighted the corporate perspective. What I discovered I had missed in my literature review was the impact of the external environment on training transfer for this context. This was likely a function of my search terms, which focused more on training transfer and less on capacity development. Through a subsequent search, I found a few

resources on the topic, though not many peer-reviewed articles. In a working paper prepared for the Organization for economic Co-Operation and Development, Pearson (2011) explicitly discusses the importance of conducting an analysis of the political, economic, sociological, technological, legal and environmental (PESTLE) elements of a context because of the impact they can have on capacity development initiatives.

In international development, factors in the external environment have the potential to make or break the initiative. Funding, for example, was mentioned as a major barrier by several of the participants in this study. From personal experience, I have observed that capacity development initiatives are often funded by a donor. Trainees are invited to take training and then asked to go back to their organizations to implement. However, if the trainees' organization lacks the funding to implement, there will be no opportunity to use. Many municipalities in Bangladesh lack sufficient funding to consistently pay salaries (Municipality staffers, 2019) Sometimes, employees go for months without pay. In addition, as was seen in one participant's comment here, they may lack resources such as computers or internet connections. In such situations, the concept of capacity to transfer takes on a new meaning.

Politics also plays an important role in public sector activities. Mayors do not have long-term job guarantees, so they are naturally focused on projects that will be more likely to result in their re-election. Fecal sludge management was not at the top of list of priorities for most of the mayors involved in this study despite their support for it in principle. In Bangladesh, feces are considered to be unholy and not something that people care to discuss. As one mayor said:

> The topic about the fecal sludge management takes some time for the people to be comfortable about. At first when we heard about the project, we felt a little awkward about it too. But soon after the training, we realized that it's not something to be shy

about. It's in fact very necessary for us, so we have given them the time to adjust to it too.

Creating demand for sanitation is a long-term endeavor (Strande, 2014). The mayor quoted above had been in office since the early 2000s, so he was confident of his chances of re-election. Mayors who are less confident of re-election may be less motivated to introduce innovative ideas to the public. Thus, no matter how motivated to transfer trainees may be, if mayors do not already support the concept, they must be first convinced that doing so will not only benefit the community, but also contribute to their chances of re-election.

Analysis of participants' perceptions of the enabling environment in their respective paurashavas revealed differences within group differences. Perceptions of socio-cultural acceptance, for example, emerged as both a facilitator and barrier depending on whether the community supported the concept of FSM or opposed it. Differences in perceptions of skills and capacities were also suggested that some saw their skills and capacities as a facilitator while others saw them as a barrier. Interestingly, those paurashavas that had not yet made much progress in terms of implementation rated themselves more highly in terms of their skills and capacities than those who had already begun, which may be an indicator that they didn't know yet what they didn't know. In any case, while it was not completely clear how the differing perceptions of the enabling environment had impacted participants' ability to transfer, it is likely they did. More evidence would be required to confirm this speculation, but what is clear is that a more thorough needs analysis done prior to the development of the training package would have allowed us to incorporate strategies for them to navigate the challenges the external environment would ultimately present. While Burke & Hutchins (2007) assert that there is no empirical

evidence yet to support the notion that needs assessments influence transfer, a strong needs assessment is still the gold standard for instructional design.

Social support as defined by the literature is defined as peer or supervisor support, and according to Burke and Hutchins (2007) is the most consistent factor explaining the relationship between the work environment and transfer. A study by Foxon (1997) found a correlation between supervisor support for applying learning and increases in transfer ($r = .36$, $p < .001$). Participants reactions in this study appear to corroborate the findings in the literature. Participants in paurashavas where the mayor had bought in to the concept of FSM and took action to promote it found the mayor's support to be motivating. The value participants placed on the mayor's support is illustrated by the comment that it was "a blessing that our mayor is motivated."

Conversely, a lack of supervisor support was demotivating. For diffusion to occur, the transfer design must find a way to reduce the mayor's uncertainty about the innovation (Dearing, 2009; Rogers, 1983). Participants from Gibeta had been motivated and confident when they left the training, but seemed to have lost their enthusiasm when they failed to convince the mayor to take immediate action on acquiring the land, and their requests that the mayor take the training appeared to be a call for help. The following conversation highlights their dilemma:

> **Participant:** We could not complete the site collection step. But everyone was informed. Everyone also agreed. But you are not being able to start before selecting the site. But we discussed that if we can select the site then how we can proceed to further procedure, who should be in charge, how we should start, and how we should end. This is all we discussed.
>
> **Interviewer:** Did you discuss about how you will procure the land?

Participant: No, because that responsibility lies with the mayor and the councillors. But there are few places that we thought could be the potential sites. …There are certain factors there about the land. Also, the Mayor will have to sign the documents if we want to procure the land. *So, this process will take some time. He is a very busy man*.

According to some studies, peer support and motivation may be even more influential than managerial support in promoting transfer (Burke & Hutchins, 2007; Facteau et al., 1995). The participants in this workshop felt that the shared goal of developing their country required collaboration, so peer support was vital to succeeding: "if we want to develop our country, we have to follow this way." Other comments, such as "Though the paurashava has different posts, everyone has to work together in a project" and "without [a shared] mentality nothing can work" reflect similar thinking. Noticeably absent from my literature review, however, is the role that external agencies such as NGOs can play as a facilitator of training transfer in capacity development initiatives. While external to the organization, our focus group discussions revealed that a number of NGOs in Bangladesh were actively involved in sanitation and that municipalities see them as partners. Through their ongoing work, not only did they provide potential opportunities for trainees to use their learning, but they also became instrumental as a form of peer support and peer motivation to trainees.

It is self-evident that participants cannot transfer their learning if they have no opportunity to do so, so it is important that the work environment allows for transfer to take place. Research has consistently shown a positive correlation between training transfer and opportunity to use, regardless of whether those opportunities are provided by the supervisor directly or through organizational initiatives (Burke & Hutchins, 2007; Salas et al., 2012). Findings here appear to validate that research. In four of the six paurashavas, the participants

had been successful in motivating the mayor to take some action toward implementing FSM and as a result had managed to accomplish a number of the six-month theory of change outcomes, such as acquiring land and raising public awareness. In one paurashava, while the mayor was uninterested in hearing about the training, because an NGO-led initiative to construct a FSTP was underway, the opportunity to apply the training was already there. Conversely, in Gibeta, participants shared that they had not been able to use what they learned because while the mayor did not oppose the idea, he viewed it as low priority, so land acquisition had been put on the back burner, and nothing had been done since.

Follow-up refers to the additional learning opportunities that should be provided to trainees after the training (Baldwin et al., 2009; Grossman & Salas, 2011; Velada et al., 2007). Effective interventions include some type of support for participants after training (Salas et al., 2012). The poster, workbook, reflection journal and action plan we created for the workshop were intended to serve as follow-up supports, but beyond those there was no additional follow-up strategies built in to the intervention.

Action planning is a strategy for identifying the steps required to turn intentions into actions (De Vries, Kremers, Smeets, Brug, & Eijmael, 2008). A number of studies have shown goal setting to be an effective post-training strategy (Taylor et al., 2005). Viewed through the lens of self-regulation, action planning becomes a useful tool for facilitating transfer, but not in the way it is commonly used. Several studies have found that having trainees complete action plans before returning to the workplace can significantly increase training transfer (Burke & Hutchins, 2007; Foxon, 1997). However, action plans incorporated as a post-training intervention, are typically general in nature, used to enhance motivation to transfer and driven by questions, such as “How do you plan to use this training?” Bates et al. (2014) suggest helping

trainees' make their implementation intentions more precise by reframing them in terms of if/then statements. In doing so, trainees will be better able to "identify critical situations and to take action to implement new learning when those situations are encountered" (p. 393). While we did have consider potential challenges and how to deal with them, only one team shared that they used the action plan as guide.

As mentioned previously, the training materials were not used much after the workshop. One reason given for this was the fact that the opportunity to use the materials had not yet presented itself since they were so early in on in the process. Another explanation might also be that they participants did not recognize the materials as job aids because they were not referenced as such. There was a recognition of the importance of follow-up, however. As one mayor eloquently put it:

> there are trainers, just like you who come here. They train people and then when it comes to providing us any necessary tools or support, you are nowhere to be found. What you offer in the training isn't realistic for us. We don't have that infrastructure required. You give training after training but then nothing happens in the reality.

It should be noted that the mayor that made the above comment was the only mayor that had not taken time to discover what his staff had learned, so his opinion is not necessarily a reflection of the workshop that was delivered. It does, however, illustrate that follow-up is perceived as a facilitator of achievement. Requests for additional support by the trainees in the form of a social media group, more exposure visits, and additional technical training also indicate that they perceive follow-up as a facilitator. One participant felt that they needed regular follow-ups and that supervision and monitoring were necessary.

Research Question 3

The third research question sought to identify the combinations of conditions that contributed to participants successfully achieving the outcomes.

Three-Month Outcomes

All paurashavas achieved the short-term transfer outcomes, which were primarily to begin sharing what they had learned with stakeholders and to begin taking action on their own action plan goals. The conditions found amongst all the teams of participants were fully in line with what the literature has identified as facilitators to transfer. In terms of trainee characteristics, all teams had similarly high perceived self-efficacy of the learning outcomes, high motivation to apply, and the training was perceived to be very helpful to extremely helpful to them in their roles. Though satisfaction is not associated with training transfer (Holton, 2005), there were also high levels of satisfaction with the training design across all teams. While few participants were able to articulate exactly what it was about the training design that had been helpful other than the participatory approach, there was a general sense that it had been effective.

Six-Month Outcomes

At six months, five of six paurashavas had been successful in achieving the six-month theory of change outcomes. Consistent with the literature (Bandura, 1977; Bates et al., Burke & Hutchins, 2007; Colquitt, et al., 2000; Grossman & Salas, 2011; Holton, 2005; Salas et al., 2012) the conditions found amongst the successful paurashavas that appeared to contribute to the six-month results include sustained motivation, sustained self-efficacy, support from peers, support from supervisors, and the opportunity to use what they had learned. In some cases, there was anecdotal evidence that the training itself was correlated with the mayors' actions. However, a

successful outcome was also achieved by the paurashava whose mayor showed no interest in the training, suggesting that training does not have to directly motivate the mayor as long as he/she has been previously motivated by some other means. Opportunity to use was also a critical factor in achieving the outcomes. Those paurashavas that had already acquired or begun to acquire land had more opportunity to apply their learning what they had learned whereas some others were in a wait-and-see mode. The presence of an NGO also contributed to a successful outcome, but in and of itself, was insufficient as a predictive factor. This was seen in the case where an NGO was active in sanitation, but there was little coordination between the municipality and the NGO due to the mayor's lack of commitment to proceed.

Ultimately, while a number of factors combined to contribute to the outcomes, it appeared that the most influential factor in terms of the paurashava being able to move the FSM agenda forward was its alignment with the mayor's strategic priorities. According to Burke and Hutchins (2007), there was not a huge body of empirical evidence supporting the notion of a correlation between organizational goals and training transfer, but a study by Lim and Johnson (2006) and another by Chiaburu & Lindsay (2008) did find that trainees perceived an increase in transfer when the learning outcomes aligned with their departmental goals.

Summary

In this chapter, I discussed my analysis of the findings. In response to the first question as to the degree that the predicted outcomes had been met, I found that the training had been successful in motivating participants to not only share what they had learned, but to also take action. My findings in terms of the facilitators to training transfer, validated what the literature review had revealed in terms of motivation, self-efficacy, perceived utility, behavior modeling and realistic and learning environments. In addition, previously identified workplace factors also

came into play. Opportunity to use along with strong support from peers and supervisors were also vital. With respect to barriers, lack of supervisor support, in particular the mayor's support, was found to be the most influential barrier as it precluded any opportunity to use. Some unexpected findings were the importance of understanding trainees' perceptions of their external environment, such as socio-cultural acceptance, government support, and the role that NGOs can play in terms of providing support. In the next chapter, I present some of the recommendations I made as a result of these findings.

Chapter 6: Conclusions and Recommendations

All evidence points to the conclusion that the training was highly effective overall. All immediate and short term predicted outcomes were met; and at least some intermediate-term outcomes were met by five of six paurashavas. However, the analysis also revealed a number of ways the intervention could be enhanced. In this chapter, I discuss what I shared in my report on the evaluation with BMGF, CAWST and the ITN-BUET team regarding my perceptions of strengths of the intervention, where I felt it could be improved as well as my recommendations for delivering the intervention in the future whether in Bangladesh or elsewhere. I also share my thoughts on opportunities for future research.

Strengths and Opportunities for Enhancement

Sharing the report with the ITN-BUET team proved to be a very valuable learning experience for me. I was very pleased that the predicted outcomes had been achieved, but at the same time wanted to provide constructive feedback on how I thought the intervention could be improved. Thus, in the first draft of the report that I shared with the team, I referred to the "weaknesses" of the intervention, which I described as "little post-training interaction between peers and trainers," "a lack of emphasis on social mobilization" and a "weak needs analysis." While I thought I had conveyed that the analysis was focused on the effectiveness of the intervention and not the team, that message failed to come across. As a result, the team found a disconnect between what I was verbally saying (Congratulations!) and what I had written (Lots of room for improvement), and found the report to be quite critical. Some members became quite defensive, likely because the report was also going to go to BMGF and DPHE and they were concerned that it might reflect negatively on the hard work they had done.

A two-hour discussion with them about the report proved to be very helpful to both of us for two reasons. First, they gave me some very insightful feedback on how the report could be improved. Secondly, it gave me an opportunity to share more about the science of training and my rationale for the design of the evaluation. Most importantly, however, it gave me a chance to change my wording so that the findings took on a more positive tone. By simply changing "weaknesses" to "opportunities for enhancement" and removing words like "lack" or "little," the mood changed and people became more receptive to what I was trying to say. Table 20 itemizes the strengths and opportunities for enhancement I included in my revised report.

Table 20

Strengths and Opportunities for Enhancement

Strengths	Weaknesses

• Participants highly appreciated:
  ○ The task-based learning methodology
  ○ The approachable trainers
  ○ The exposure visit
	• Social support can be enhanced by providing opportunities for post-training interaction with peers and trainers

• The step-by-step approach built participants' confidence to implement FSM	• The field visit could be used to better advantage
• Participants recognized the importance of stakeholder engagement to FSM	• More examples of successful implementations would build motivation and confidence
• Sustained participation throughout the workshop	• More emphasis on the use of job aids after the training would facilitate implementation
• The training materials effectively guided the learning The trainees were motivated to promote FSM after the training	• More emphasis on creating demand for sanitation/FSM early on in the workshop so that it is viewed as the final step
• The training achieved all the predicted outcomes to the accountability line and beyond	• Providing strategies for motivating decision-makers may help increase mayors' perception of FSM as a priority

- Two mayors attributed the training as a key motivator in their decision to take action on FSM
- Reactions from council and TLCC members on learning about FSM from workshop participants were very positive
- Team-based learning contributed to post-training peer support in the workplace
- Active collaboration between DPHE and the paurashavas post-training
- Prior understanding of participants' needs and the contexts within which they work allows for the trainers to address those needs during the workshop
- Translation of materials into Bangla would have made it easier for participants to understand the instructions and content*

*The materials were revised for subsequent cohorts.

Recommendations

My analysis of the findings resulted in six recommendations. For each recommendation, I provided a rationale, suggestions for implementation and listed some critical success factors. The recommendations were generally well-received, but team members were not sure they would be able to implement all of them. They felt that some of the recommendations were out of their hands as they were the responsibility of DPHE and that some of the suggested additions and revisions to the content might take too much time when they had other projects they needed to work on. I chose to leave all the recommendations as they were because I saw them as important to the sector as much as to ITN-BUET. While the project for which the training was developed had almost wrapped up, CAWST was planning to use the materials in other contexts and there was a possibility that BMGF could roll out similar initiatives in other countries. Thus, I felt the learning gained from this evaluation could be beneficial to future ITN-BUET projects as well as other FSM capacity development initiatives. As of the time of writing, I had not yet shared the results with BMGF to get their perspective, however. My recommendations are described next.

Recommendation 1: Conduct thorough needs analyses prior to delivering workshops to ensure that the training content takes into account trainees' current context

Because content validity is fundamental to training transfer, conducting needs analysis prior to developing training is vital (Bates, et al., 2000, Lim & Morris, 2006; Salas et al, 2012,). Analysis of the data revealed significant differences between the paurashavas represented in the workshop. The needs analysis should not focus on dynamics within the organization alone, however. A PESTLE analysis of the external environment, which involves an investigation of the political, economic, social, technological, legal and environmental factors that could impact training transfer, would provide a much broader understanding of the potential barriers and facilitators participants will face on their return to the workplace. For example, we noted that in two of the paurashavas, NGOs were active in sanitation-related activities. In one paurashava, the NGO was actually leading the implementation. In the other, the NGO was conducting a household survey and doing capacity building with emptiers. Knowing in advance that NGOs were active in the communities would have allowed the training team to understand the roles trainees would be and could be playing in the implementation and emphasize the opportunities for synergies between the paurashava and the NGO's activities. Table 21 details the implementation and success factors suggested for Recommendation 1.

Table 21

Implementation and Success Factors for Recommendation 1

Implementation	Success Factors
1. Conduct web-based interviews and/or focus groups with paurashava staff to discuss their perceptions of the existing enabling environment. In particular, find out where sanitation fits in the mayor's current list of priorities.	• Allocate time to create an effective survey or interview protocol that will reflect the main points that you would like to address. • Make sure that trainees' understand the purpose of the needs analysis.

2. Distribute a survey to your clients by web link, phone or in-person. 3. Collect and analyze the data, looking for themes across the different paurashavas. 4. Integrate the findings and decide how the training might be adapted to better fit the contexts of the paurashavas being invited.	• Deliver surveys in different formats to collect the most data. • Provide sufficient time to complete the data collection. • Analyze the findings as a team. • If NGOs are active in sanitation-related activities, speak with them to identify opportunities for collaboration or better yet, invite a representative to attend the training.

Recommendation 2: Build and moderate a post-training community of practice using a social media platform and facilitate action learning sets to continue to support and motivate staff

Social support is crucial once trainees begin to apply their learning after the workshop (Blume, Ford, Baldwin, & Huang, 2010; Burke & Hutchins, 2007; Holton, 2005; Kontoghiorghes, 2002). Not only is follow-up motivational because it shows the training partners' interest in trainees' success, it also allows the training organization to help keep CWIS and FSM top-of-mind at the field level. A social media platform creates a community of practice (Lave & Wenger, 1991; Wenger et al., 2002) that would allow participants of the workshop to share their successes and challenges, ask questions or request advice from experts or peers Table 22 details the implementation and success factors suggested for Recommendation 2.

Action learning, on the other hand, is a strategy for fostering post-training social support through problem-solving. Formulated by Reginald Revans, action learning is a process that involves individuals, teams and organizations working in small groups on real-world issues to learn and develop the capacity to take action (World Institute for Action Learning, 2019). *Action* refers to the change that takes place in the organization, and *learning* refers to the new mindset that participants adopt as a result. According to Kramer (2007), action learning "builds a community of learners that allows group members to transfer what they learn in the process of

solving an urgent problem today to solve other more complex workplace problems tomorrow" (p. 41). Typically, groups of five to seven members meet at least once a month to discuss and reflect on an urgent problem. Each session is guided by one of the members, who acts as the coach. The role of the coach is to pose challenging questions that challenge existing beliefs and support the learning process. The action learning process is, of course, not just about learning, but about applying the learning through action. Key to the process is that all problems must be real and that reflection is as important as action (Dilworth, 1998).

Table 22

Implementation and Success Factors for Recommendation 2

Implementation	Success Factors
1. Use a social platform that is familiar to participants, such as Facebook. If a new platform is built, create a page on Facebook that links to the platform. 2. Moderate the discussions and upload new information regularly. 3. Use the questions asked or points raised in the discussions to identify gaps in knowledge. 4. Address the gaps by providing links to relevant information. 5. Develop training materials related to identified gaps in knowledge, skills and abilities. 6. Post-training, facilitate real-time action learning sets or learning exchanges.	• Assign, and if possible, compensate a moderator who regularly interacts with the participants by asking thought-provoking questions, uploading new information and tools, and connecting them with the broader FSM network. It is possible that only a few people will actively discuss topics, but many will be reading and learning. • Provide rewards to participants that post regularly. Possible rewards include badges, giving them admin rights or credits toward future training. • Connect participants with consultants. • Share case studies of successful and unsuccessful implementations. • Share video tours of treatment plants during all phases of construction.

Recommendation 3: Develop a workshop for mayors specifically designed to build their motivation and self-efficacy to prioritize FSM initiatives, and prioritize future workshops for paurashavas whose mayors voluntarily request the CWIS workshop for their staff as a result of the workshop

Whether or not trainees' are able to apply their learning depends to a large degree on the mayor. If the mayor lacks the vision, motivation, confidence, or political will to make CWIS a priority, the staff will have no opportunity to use the training. Some studies have shown that linking the content of training with the strategic goals of an organization is a way to increase motivation to transfer (Chiaburu & Lindsay, 2008; Lim & Johnson, 2002). In most cases in this study, staff members were successful in motivating their mayors to take some kind of action. However, if mayors could be motivated prior to the workshop and given strategies for how they can support training transfer later, the likelihood of success could be even greater (Chiaburu & Teklaub, 2005; Martin, 2010; Salas et al, 2012).

According to diffusion theory, change agents and opinion leaders must work hand in hand for the diffusion to be successful. Dearing (2009) recommends demonstrating an innovation to improve its observability. He also suggests recruiting opinion leaders to participate in the dissemination efforts, have them talk about the innovation with their colleagues, and inform them where they can find additional information about the innovation. Some of the paurashavas with motivated mayors mentioned that they wanted to become model communities, and that they were interested in leading, not following. Growing the number of model communities would provide more local examples of CWIS in action. Given that participants mentioned the field visit as the single most impactful activity in the training, and that they wanted more models and exposure visits, it made sense to prioritize the paurashavas that have the greatest chance of succeeding and to use them as models for future implementations. Table 23 details the implementation and success factors suggested for Recommendation 3.

Table 23

Implementation and Success Factors for Recommendation 3

Implementation	Success Factors
1. Interview mayors to identify their concerns and objections. 2. Research the literature for strategies on persuading decision-makers to adopt an innovation. 3. Design a workshop that includes strategies for overcoming challenges, stories from other mayors, and a local exposure visit. 4. At the end of the workshop, persuade mayors to commit to action by signing up their staff to take the complete workshop. 5. Provide follow-up training for additional staff in municipalities that have taken action as a result of the training.	• Incorporate videos and local case studies as part of the workshop in place of multiple in-person exposure visits. • Do one in-person site visit to a treatment plant that would be similar to one that would be constructed in the mayors' respective municipalities. • Build mayor's confidence and resilience by providing strategies for overcoming challenges. • Provide strategies for how mayors' can support their staff after that take the *FSM in Cities: An Element of CWIS* workshop. • Build motivation by tying CWIS to political goals and service to the community. • Convince mayors to send decision-makers to the *FSM in Cities: An Element of CWIS* training.

Recommendation 4: Enhance the existing training materials and ensure that the workshop is delivered as intended

While the materials and the delivery of the workshop were effective overall, I felt that there was room for improvement. Given that this evaluation assessed only the first cohort, many of the following suggestions had already been incorporated into the workshop. However, I included them in my report so that they could be on record and serve as guidance for future instructional design, development and delivery of training modules. Table 24 details the implementation and success factors for Recommendation 4.

Table 24

Implementation and Success Factors for Recommendation 4

Implementation	Success Factors
• During workshops, observe how trainees' interact with the content. For example, note where they are on track and where they lose interest. Typically, this will occur when lectures go on too long or when the instructions are unclear. Re-think tasks or rewrite instructions based on the observations of trainees' behaviors. • Build the capacity of trainers to deliver workshops using a participatory approach, not only for *FSM in Cities: An Element of CWIS* , but for all training. • Ask participants to do some reading prior to the workshop, e.g. the IRF • Engage subject matter experts to identify tools they actually use in the field, for example real household surveys and shitflow diagrams. • Develop a package of templates, job aids and tools that participants can use for real-world implementation after the workshop. Provide online training for how to use the tools. • Answer questions related to real-world use of the job aids and tools after the training using the social media platform. • Provide professional development opportunities to continue to build the ITN-BUET team's instructional design skills for face-to-face and online delivery.	• Try to keep the lectures to 20 minutes or less. Longer lectures can be "chunked" by providing a task or discussion in between. Small group or pair-based discussions during a lecture encourage more participation than questions to a large group. • Not all information needs to be front-loaded in the lecture. Try to provide knowledge *just-in-time*, meaning provide it when participants need to complete a task. • Training effectiveness is dependent on the workshop being delivered as designed: ensure that trainers do not stray too far from the lesson plans and materials provided to them. • Provide the workshop brochure to participants prior to the training to help them understand what to expect in the training. • Encourage participants to print the *FSM in Cities: An Element of CWIS* poster as a reminder for trainees and a guide to all paurashava staff of what needs to be done. • Encourage participants to develop a more specific action plan on return to their workplace that takes into account the realities in their environments.

Recommendation #5: Revise the existing content to incorporate strategies for increasing public awareness and creating demand for FSM early on

The existing content did a very good job of raising awareness of the procedural elements of implementing FSM, but it did not sufficiently prepare participants to navigate the challenges they will face on their return to the workplace. There seemed to be a gap in how to empower

decision-makers to manage multiple priorities and yet still take action on FSM. In addition, there was a perception that until land for the treatment plant is acquired nothing could be done in terms of social mobilization. This may partly be a function of the fact that social mobilization was presented as the final step in the process rather than something that could be done throughout the implementation. Table 25 details the implementation and success factors for Recommendation 5.

Table 25

Implementation and Success Factors for Recommendation 5

Implementation	Success Factors
1. Research strategies for how to create demand for FSM services in the community. 2. Research how to create synergies between different projects so that FSM is not seen as a completely separate initiative, but can be implemented in phases alongside other projects. 3. Incorporate demand creation strategies into the content throughout the workshop so that social mobilization is not perceived as the last step. 4. In the social mobilization lesson, incorporate strategies for persuading decision-makers to prioritize FSM. 5. Include a discussion on how to create synergies between existing projects and priorities. 6. Provide time to discuss the strategies and practice applying them.	• Create a variety of potential scenarios so that trainees are prepared to respond to different kinds of objections. • Create personas with differing perspectives and assign trainees to represent the personas. • Stress that social mobilization is not the last step, but occurs all the way through the process.

Recommendation 6: Use the site visit to better advantage

Of all the lessons, the site visit had the greatest impact. This relates to Bandura's social cognitive learning theory (Bandura, 1977; Bandura 1988) and research that has shown that

behavior modeling (Russ-Eft, 2002; Taylor, Russ-Eft, & Chan, 2005) is extremely effective in increasing both motivation and perceived self-efficacy. That the treatment plant had a simple design, but was an efficient solution was even more motivating because participants could envision constructing something similar in their own paurashava. Time at the plant could have been used to provide insight into the technical aspects of the plant design that some trainees felt was missing, and a longer visit with representatives from the municipality would have allowed time for more questions. Table 26 details the implementation and success factors for Recommendation 6.

Table 26

Implementation and Success Factors for Recommendation 6

Implementation	Success Factors
1. Select a site that reflects the type of plant most likely to be built in the trainees' paurashavas. 2. If the distance to the site is great, try to arrange for overnight accommodation for one night. 3. Ask trainees to prepare questions to ask the municipality before the visit. 4. Send the questions to the municipality beforehand so that they can be better prepared to answer them. 5. At the site, have an engineer discuss the rationale for the design as well as its features before allowing trainees to explore the site on their own. 6. Allow for time to speak with pit emptiers. 7. Ask trainees who are engineers to complete an exercise requiring technical knowledge.	• Make trainees accountable for the exercise provided in the treatment and technologies section of the workbook

Future Research Agenda

A few opportunities for future research have come to light as a result of this case study. First is the dearth of research on the impact of the external environment on training transfer in capacity development initiatives. Though the sample size in this case study was small, statistically significant differences were observed in between group comparisons of perceptions of socio-cultural acceptance, financial support, institutional arrangements, and government support. How these perceptions impacted or could still impact participants' training transfer was unclear, however. Therefore, a better understanding of how these external environmental factors have the potential to affect training transfer would allow for instructional designers to not only ensure that they are considered during the needs assessment, but also to incorporate strategies for addressing them in the design of the intervention. In addition, because most training transfer research is focused on the corporate sector, another opportunity for future research would be to investigate the role that politics plays in training transfer within the public sector, especially in international capacity development.

After hearing the voices of the mayors in this study, some of whom seemed at a loss on how to address challenges, such as financing and social-acceptance, another topic might be to investigate how best to design interventions that motivate and build the self-efficacy of politicians so that they too can feel empowered to implement innovative solutions to critical issues in their communities. Another possibility for further study would be to assess if incorporating strategies for motivating decision-makers into capacity development initiatives can make a difference in terms of increasing opportunity to use. Finally, because this case study was focused on only one cohort of participants in the *FSM in Cities: An Element of CWIS workshop*, a broader investigation involving participants from all the cohorts that took the workshop to

between September 2019 and January 2020 might reveal more generalizable results from which to better understand the impact of the training and the factors that influenced the outcomes.

References

Akumuntu, J. B., Wehn, U., Mulenga, M., & Brdjanovic, D. (2017) Enabling the sustainable Faecal Sludge Management service delivery chain-A case study of dense settlements in Kigali, Rwanda. *International Journal of Hygiene and Environmental Health, 220*(6), 960-973. https://doi.org/10.1016/j.ijheh.2017.05.001

Axtell, C. M., & Maitliss, S. K. (1997). Predicting immediate and longer-term transfer of training. *Personnel Review, 26*(3), 201-213. doi:10.1108/00483489710161413

Aziz, R. (2018, December). Report for sensitization workshop on FSM for the project implementing officials under 23 Paurashava projects in Bangladesh (GoB-IDB). Retrieved from http://itn.buet.ac.bd/news-events/latest-news/

Bainbridge Frymier, A., & Houser, M. L. (1999). Revised learning indicators scale. C*ommunication Studies, 50*(1), 1-12. https://www.tandfonline.com/doi/abs/10.1080/10510979909388466

Baldwin, T., & Ford, J.K. (1988). Transfer of training: A review and directions for future research. *Personnel Psychology, 41*(1), 63-105. https://doi-org.proxyiub.uits.iu.edu/10.1111/j.1744-6570.1988.tb00632.x

Bamberger, M., Rao, V., & Woolcock, M. (2010). *Using mixed methods in monitoring and evaluation: Experiences from international development* (Working paper No. 5245). The World Bank Development Research Group, Poverty and Inequality Team. Retrieved from http://documents.worldbank.org/curated/en/884171468156574032/Using-mixed-methods-in-monitoring-and-evaluation-experiences-from-international-development

Bandura, A. (1969). Social-learning theory of identificatory processes. In D. A. Goslin (Ed.), *Handbook of Socialization Theory and Research* (pp. 213-262). Chicago: Rand McNally.

Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavior change. *Psychological Review, 84*(2), 191-215. https://doi.org/10.1016/0146-6402(78)90002-4

Bandura, A. (1988). Organizational applications of social cognitive theory. *Australian Journal of Management, 13*(2), 275- 302. Retrieved from https://www.uky.edu/~eushe2/Bandura/Bandura1988AJM.pdf

Bandura, A. (1994). Self-efficacy. In V. S. Ramachaudran (Ed.), Encyclopedia of human behavior (Vol. 4, pp. 71-81). New York: Academic Press. (Reprinted in H. Friedman [Ed.], Encyclopedia of mental health. San Diego: Academic Press, 1998). Retrieved from https://www.unitar.org/hiroshima/sites/unitar.org.hiroshima/files/18.AF_2010_WS2-3_Self-Efficacy.pdf

Bates, R. A., Cannonier, N., & Hatala, J. P. (2014). Linking motivation to workplace learning transfer. In Neal E. Chalofsky, Tonette, S. Rocco, & Michael Lane Morris (Eds.), *Handbook of Human Resource Development*. Hoboken, NJ: John Wiley and Sons.

Bates, R. A., & Holton, E. F. (2012). *Learning transfer system inventory.* Retrieved from Bates by email.

Bates, R. A., Holton, E. F., & Hatala, J. P. (2012). A revised learning transfer system inventory: factorial replication and validation. *Human Resource Development International, 15*(5), 549–569. https://doi.org/10.1080/13678868.2012.726872

Bates, R. A., Holton, E. F., Seyler, D. L., & Carvalho, M. A. (2000). The role of interpersonal factors in the application of computer-based training in an industrial setting. *Human Resource Development International, 3*(1), 1942. doi:10.1080/136788600361920

Bauer, K. N., Orvis, K. A., Ely, K., & Surface, E. A. (2016). Re-examination of motivation in learning contexts: Meta-analytically investigating the role type of motivation plays in the

prediction of key training outcomes. *Journal of Business and Psychology*, *31*(1), 33-50. https://doi.org/10.1007/s10869-015-9401-1

Bill and Melinda Gates Foundation. (2010). *Water, Sanitation and Hygiene* [Fact sheet]. Retrieved from https://docs.gatesfoundation.org/documents/water-sanitation-hygiene-fact-sheet-2010.pdf

Blanchard, C. P., & Carpenter, B. (2012). Experiences of action learning groups for public health managers in rural KwaZulu-Natal, South Africa. *Rural and Remote Health, 12*(2026), 1-11. Retrieved from https://www.ncbi.nlm.nih.gov/pubmed/22891607

Blume, B. D., Ford, J. K., Baldwin, T. T., & Huang, J. L. (2010). Transfer of training: A meta-analytic review. *Journal of Management, 36,* 1065–1105. https://doi-org.proxyiub.uits.iu.edu/10.1177/0149206309352880

Brown, J. S., Collins, A., & Duguid, P. (1989). Situated cognition and the culture of learning. *Educational Researcher, 18*(1), 32–42. https://doi.org/10.3102/0013189X018001032

Burke, L. A., & Hutchins, H. M. (2007). Training transfer: An integrative literature review. *Human Resource Development Review 2007, 6*(3), 263–296. https://doi-org.proxyiub.uits.iu.edu/10.1177/1534484307303035

Centre for Affordable Water and Sanitation Technologies. (2015). Delivering effective WASH training - trainer manual. Retrieved from https://resources.cawst.org/trainer-manual/09dd31f3/delivering-effective-wash-training-trainer-manual

Chatterjee, A, Pereira, A, & Sarkar, B. (2018). Learning transfer system inventory (LTSI) and knowledge creation in organizations. *The Learning Organization*, *25*(5), 305-319. doi:10.1108/TLO-06-2016-0039

Chen, H. C. (2003). *Cross-cultural construct validation of learning transfer system inventory in Taiwan*. Unpublished doctoral dissertation, Louisiana State University, Baton Rouge. https://digitalcommons.lsu.edu/gradschool_dissertations/2254

Cheng, E. W. L., & Ho, D. C. K. (2001). A review of transfer of training studies in the past decade. *Personnel Review, 30*(1), 102–118. https://doi-org.proxyiub.uits.iu.edu/10.1108/00483480110380163

Chiaburu, D. S., & Lindsay, D. R. (2008). Can do or will do? The importance of self-efficacy and instrumentality for training transfer. *Human Resource Development International, 11*(2), 199-206. http://dx.doi.org/10.1080/13678860801933004

Chiaburu, D. S., & Tekleab, A. G. (2005). Individual and contextual influences on multiple dimensions of training effectiveness. *Journal of European Industrial Training, 29*(8), 604-626. https://doi.org/10.1108/03090590510627085

Cohen, D. & Crabtree, B. (2008, July). Qualitative research guidelines project. Retrieved from http://www.qualres.org/HomeExte-3704.html

Colquitt, J. A., Lepine, J., & Noe, R. A. (2000). Toward an integrative theory of training motivation: A meta-analytic path analysis of 20 Years of research. *Journal of Applied Psychology, 85*(5), 678-707. http://dx.doi.org.proxyiub.uits.iu.edu/10.1037/0021-9010.85.5.678

Colquitt, J. A., & Simmering, M. S. (1998). Conscientiousness, goal orientation, and motivation to learning during the learning process: A longitudinal study. *Journal of Applied Psychology, 83*(4), 654-665. http://dx.doi.org.proxyiub.uits.iu.edu/10.1037/0021-9010.83.4.654

Creswell, J. W. (2007). *Qualitative inquiry and research design: Choosing among five approaches* (2nd ed.). Thousand Oaks, CA: Sage Publications.

Creswell, J. W., & Poth, C. N. (2016). *Qualitative inquiry and research design: Choosing among five approaches* (4th ed.). Thousand Oaks, CA: Sage Publications.

Creswell, J. W., & Plano Clark, V. L. (2018). *Designing and conducting mixed methods research* [Kindle version]. Retrieved from Amazon.com.

De Vries, H., Kremers, S. P. J., Smeets, T., Brug, J., & Eijmael, K. (2008). The effectiveness of tailored feedback and action plans in an intervention addressing multiple health behaviors. *American Journal of Health Promotion*, *22*(6), 417–424. https://doi.org/10.4278/ajhp.22.6.417

Dearing, J. W. (2009). Applying diffusion of innovation theory to intervention development. *Research on Social Work Practice, 19*(5), 503-518. https://doi-org.proxyiub.uits.iu.edu/10.1177/1049731509335569

Department of Public Health Engineering. (n.d.). Overview. Retrieved from https://www.dphe.gov.bd/index.php?option=com_content&view=article&id=77&Itemid=153

Dilworth, R. L. (1998). Action learning in a nutshell. *Performance improvement quarterly*, *11*(1), 28-43. https://doi.org/10.1111/j.1937-8327.1998.tb00076.x

Dormant, D. (1999). Implementing human performance technology in organizations. In H. D. Stolovitch and E. J. Keeps (Eds.), *Handbook of Human Performance Technology* (2nd ed). San Francisco, CA: Jossey-Bass.

Dowson, J. (2019). Transferring knowledge into practice? Exploring the feasibility of action learning for improving knowledge, skills and confidence in clinical communication skills. BMC Medical Education, *19*(37), 1-13. https://doi.org/10.1186/s12909-019-1467-4

Duffy, T. M., & Jonassen, D. H. (1991). Constructivism: New implications for instructional technology. In T. M. Duffy and D. H. Jonassen (Eds.), *Constructivism and the Technology of Instruction: A Conversation*. Hillsdale, NJ: Lawrence Erlbaum Associates.

Evaluation Office of United Nations Environment. (2017). Use of theory of change in project evaluations. Retrieved from https://wedocs.unep.org/bitstream/id/8b45f5ff-c37b-4aac-b386-6b6b8e29aaed/11_Use_of_Theory_of_Change_in_Project_Evaluation_26.10.17.pdf

Facteau, J. D., Dobbins, G. H., Russell, J. E. A., Ladd, R. T., & Kudisch, J. D. (1995). The influence of general perceptions of the training environment on pre-training motivation and perceived training transfer. *Journal of Management, 21*(1), 1-25. doi:10.1177/014920639502100101

Faecal Sludge Management: Small Towns Project Bangladesh 2017 – 2020. (n.d). Retrieved from Sustainable Sanitation Alliance website: https://www.susana.org/en/knowledge-hub/projects/database/details/428

Fitzpatrick, R. (2001). The strange case of the transfer of training estimate. *The Industrial-Organizational Psychologist, 39*(2), 18–19. Retrieved from https://www.siop.org/tip/backissues/TipOct01/pdf%20tip/392_018to019.pdf

Foxon, M. (1997). The influence of motivation to transfer, action planning, and manager support on the transfer process, 10(2), 42-63. https://doi-org.proxyiub.uits.iu.edu/10.1111/j.1937-8327.1997.tb00048.x

FSM has been identified as immediate solution for city sanitation coverage. (n.d.) Retrieved from http://itn.buet.ac.bd/news-events/latest-news/#

Freedman, A. (2011). Using action learning for organizational development and change. *Organizational Development Practitioner, 43*(2), 8-13. Retrieved from https://cdn.ymaws.com/www.odnetwork.org/resource/resmgr/publications/371.pdf

Gliem, J. A., & Gliem, R. R. (2003, October 8-10). *Calculating, interpreting, and reporting Cronbach's alpha reliability coefficient for Likert-type scales.* 2003 Midwest Research to Practice Conference in Adult, Continuing and Community Education, Ohio State University, Columbus, OH. Retrieved from https://scholarworks.iupui.edu/bitstream/handle/1805/344/Gliem%20&%20Gliem.pdf?s..

Grossman, R., & Salas, E. (2011). The transfer of training: what really matters? *International Journal of Training and Development, 15*(2), 103–119. https://doi-org.proxyiub.uits.iu.edu/10.1111/j.1468-2419.2011.00373.x

Hall, G. E., Dirksen, D. J., George, A. A. (2006). *Measuring implementation in schools: Levels of use.* Research and Development Center for Teacher Education: University of Texas at Austin. Retrieved from http://www.sedl.org/cbam/lou_manual_201410.pdf

Harries, E., Hodgson, L., and Noble, J. (2014). Creating your theory of change: NPC's practical guide. London, UK: New Philanthropy Capital. Retrieved from https://www.thinknpc.org/resource-hub/creating-your-theory-of-change-npcs-practical-guide/

Hawley, J. D., & Barnard, J. K. (2005). Work environment characteristics and implications for training transfer: A case study of the nuclear power industry. *Human Resource Development*

International, *8*(1), 65–80. https://doi-org.proxyiub.uits.iu.edu/10.1080/1367886042000338308

Hinrichs, A. C. (2014). Predictors of collateral learning transfer in continuing vocational training. *International Journal for Research in Vocational Education and Training, 1*(1), 35 56. doi: 10.13152/IJRVET.1.1.3

Holton, E. F., III. (1996). The flawed four-level evaluation model. *Human Resource Development Quarterly, 7*(1), 5-21. https://doi-org.proxyiub.uits.iu.edu/10.1002/hrdq.3920070103

Holton, E. F. (2005). Holton's Evaluation Model: New Evidence and Construct Elaborations. *Advances in Developing Human Resources*, *7*(1), 37–54. https://doi.org/10.1177/1523422304272080

Holton, E. F., Bates, R. A., & Ruona, W. E. A. (2000). Development of a generalized learning transfer system inventory. *Human Resource Development Quarterly*, *11*(4), 333-360. https://doi-org.proxyiub.uits.iu.edu/10.1002/1532-1096(200024)11:4<333::AID-HRDQ2>3.0.CO;2-P

IBM Corp. Released 2019. IBM SPSS Statistics for Windows, Version 26.0. Armonk, NY: IBM Corp.

ITN Team (n.d.). Retrieved from Bangladesh University of Engineering and Technology website: http://itn.buet.ac.bd/resources/about/

Jonassen, D. H. (1999). Designing constructivist learning environments. In C. M. Reigeluth (Ed.), *Instructional design theories and models: A new paradigm of instructional theory* (pp. 217-239). Mahwah, NJ: Lawrence Erlbaum Associates, Inc.

Kahwati, L. C., & Kane, H. L. (2020). *Qualitative comparative analysis in mixed methods research and evaluation.* Thousand Oaks, CA: Sage Publications.

Khasawneh, S., Bates, R., & Holton, E. F. (2006). Construct validation of an Arabic version of the Learning Transfer System Inventory (LTSI) for use in Jordan. *International Journal of Training and Development, 10*(3), 180 – 194. https://doi-org.proxyiub.uits.iu.edu/10.1111/j.1468-2419.2006.00253.x

Kim, J., Bates, R. A. & Song, J. H. (2019). Validation of the Learning Transfer System Inventory (LTSI) in the Korean corporate context. *Human Resource Development International*, *22*(3), 217-234. DOI: 10.1080/13678868.2019.1567208

Kirkpatrick, J. D., & Kirkpatrick, W. K. (2016). Kirkpatrick's four levels of training evaluation. Alexandria, VA: ATD Press.

Kirwan, C., & Birchall, D. (2006). Transfer of learning from management development programmes: Testing the Holton model. *International Journal of Training and Development, 10*(4), 252-268.

Kontoghiorghes, C. (2002). Predicting motivation to learn and motivation to transfer learning back to the job in a service organization: A new systemic model for training effectiveness. *Performance Improvement Quarterly, 15*(3), 114-129. https://doi-org.proxyiub.uits.iu.edu/10.1111/j.1937-8327.2002.tb00259.x

Kontoghiorghes, C. (2004). Reconceptualizing the learning transfer conceptual framework: Empirical validation of a new systemic model. *International Journal of Training and* Development, 8(3), 210–221. https://doi-org.proxyiub.uits.iu.edu/10.1111/j.1360-3736.2004.00209.x

Kratwohl, D. R. (2002). A revision of Bloom's taxonomy: An overview. *Theory into Practice, 41*(4), 212-218. https://doi.org/10.1207/s15430421tip4104_2

Lave, J., & Wenger, E. (1991). *Situated learning: Legitimate peripheral participation.* Cambridge, UK: Cambridge University Press.

Levin, M. L., Katz, E., & Hamilton, H. (1963). Traditions of research on the diffusion of innovation. *American Sociological Review, 28*(2), 237-252. https://www.jstor.org/stable/2090611

Lim, D. H., & Johnson, S. D. (2002). Trainee perceptions of factors that influence learning transfer. *International Journal of Training and Development, 6*(1), 36–48. https://doi-org.proxyiub.uits.iu.edu/10.1111/1468-2419.00148

Lim, D. H., & Morris, M. L. (2006). Influence of trainee characteristics, instructional satisfaction, and organizational climate on perceived learning and training transfer. *Human Resource Development Quarterly, 17*(1), 85-115. https://doi.org/10.1002/hrdq.1162

Lincoln, Y. S., & Guba, E. G. (1985). *Naturalistic inquiry.* Newbury Park, CA: Sage Publications.

Local Government Engineering Department, Local Government Division, Ministry of Local Government, Rural Development & Cooperation. (2019). Urban Management Unit: About Us. Retrieved from https://oldweb.lged.gov.bd/UnitAbout.aspx?unitID=%2010

Local Government Division, Ministry of Local Government, Rural Development & Cooperation. (2016). Bangladesh country paper. Retrieved from 6th South Asian Conference on Sanitation website: http://www.sacosanvi.gov.bd/data/frontImages/Bangladesh_Country_Paper.pdf

Martin, H. J. (2010a). Workplace climate and peer support as determinants of training transfer. *Human Resource Development Quarterly*, *21*(1), 87-104. https://doi-org.proxyiub.uits.iu.edu/10.1002/hrdq.20038

Martin, H. J. (2010b). Improving training impact through effective follow-up techniques and their application. *Journal of Management Development, 29*(6), 520–534. https://doi-org.proxyiub.uits.iu.edu/10.1108/02621711011046495

Montesino, M. U. (2002). A descriptive study of some organizational-behavior dimensions at work in the Dominican Republic: Implications for management development and training. *Human Resource Development International*, *5*(4), 393–409. https://doi.org/10.1080/13678860110059366

Nyanga, P. H. (2012). Factors influencing adoption and area under conservation agriculture: A mixed methods approach. *Sustainable Agriculture Research, 1*(2), 27-40. http://dx.doi.org/10.5539/sar.v1n2p27

Palinkas, L. A., Horwitz, S. M., Green, C. A., Wisdong, J. P., Duan, N., & Hoagwood, K. (2015). Purposeful sampling for qualitative data collection and analysis in mixed method implementation research. *Administration and Policy in Mental Health and Mental Health Services Research, 42*(5), 533-544. https://doi.org/10.1007/s10488-013-0528-y

Pearson, J. (2011). Training and beyond: Seeking better practices for capacity development. (OECD Development Co-operation Working Paper, No. 1). Paris, France: OECD Publishing, Paris. https://doi.org/10.1787/5kgf1nsnj8tf-en.

Ragin, C. C. (2014). *The comparative method: moving beyond qualitative and quantitative strategies*. Oakland: University of California Press.

Rahman, M., Ali, M. A., Choudhury, M. R., Rahman, M. A., Redwan, M. A., Noor, N. F., & Sohan, A. I. (2015, October). *Case Study 1: Fecal sludge management (FSM) Scenario in Urban Areas of Bangladesh* (Project No. 46465). Dhaka, Bangladesh: ITN-BUET Centre for Water Supply and Management.

Rogers, E. M. (1983). *Diffusion of innovations* (3rd ed.). New York, NY: Free Press.

Russ-Eft, D. F. (2002). A typology of training design and work environment factors affecting workplace learning and transfer. *Human Resource Development Review, 1*(1), 45–65. https://doi-org.proxyiub.uits.iu.edu/10.1177/1534484302011003

Safe fecal sludge management in Faridpur. (n.d.) Retrieved from Sustainable Sanitation Alliance website: https://practicalaction.org/fsm-faridpur.

Saks, A. M. (2002, January). So what is a good transfer of training estimate? A reply to Fitzpatrick. *The Industrial-Organizational Psychologist*, *39*, 29–30. Retrieved from https://www.siop.org/tip/backissues/tipjan02/pdf/393_%20029to030.pdf

Saks, A.M., & Belcourt, M. (2006). An investigation of training activities and transfer of training in organizations. *Human Resource Management*, *45*(4), 629-648. https://doi-org.proxyiub.uits.iu.edu/10.1002/hrm.20135

Salas, E., Tannenbaum, S. I., Kraiger, K., & Smith-Jentsch, K. A. (2012). *The science of training and development in organizations: What matters in practice.* Association for Psychological Science, 13(2), 74-101. https://www.jstor.org/stable/23484697

Schutt, R. K. (2017). *Understanding the social world: research methods for the 21st century* [Kindle Edition]. Los Angeles, CA: Sage Publications.

Serao, C. (2017). Institutional and regulatory framework for faecal sludge management launched by the government [Blog post]. Retrieved from

https://www.wateraid.org/bd/media/institutional-and-regulatory-framework-for-faecal-sludge-management-launched-by-the

Strande, L. (2014). The global situation. In L. Strande, M. Ronteltap, & D. Brdjanovic (Eds.), *Faecal Sludge Management: Systems Approach for Implementation and Operation.* London, UK: IWA Publishing. Retrieved from https://www.un-ihe.org/sites/default/files/fsm_book_lr.pdf

Taylor, P. J., Russ-Eft, D. F. & Chan, D. W. L. (2005). A meta-analytic review of behavior modeling training. *Journal of Applied Psychology, 90*(4), 692–709. http://dx.doi.org.proxyiub.uits.iu.edu/10.1037/0021-9010.90.4.692

Tonhäuser, C., & Büker, L. (2016). Determinants of transfer of training: A comprehensive literature review. *International Journal for Research in Vocational Education and Training, 3*(2), 127-165. https://doi.org/10.13152/IJRVET.3.2.4

United Nations Economic and Social Council, Committee of Experts on Public Administration. (2006). *Definition of basic concepts and terminologies in governance and public administration*. Retrieved from http://unpan1.un.org/intradoc/groups/public/documents/un/unpan022332.pdf

Valente, T. W., & Davis, R. L. (1999). Accelerating the diffusion of innovations using opinion leaders. *The Annals of the American Academy of Political and Social Science, 566*(1), 55–67. https://doi-org.proxyiub.uits.iu.edu/10.1177/000271629956600105

Van der Locht, M., Dam, K. Van, & Chiaburu, D. S. (2013). Getting the most of management training: The role of identical elements for training transfer. *Personnel Review, 42*(4), 422-439. doi:10.1108/PR-05-2011-0072

Weissbein, D. A., Huang, J. L., Ford, K. K., & Schmidt, A. M. (2011). Influencing learning states to enhance trainee motivation and improve training transfer. *Journal of Business and Psychology, 26*, 423-435. https://doi.org/10.1007/s10869-010-9198-x

Wenger, E., McDermott, R., & Snyder, W. M. (2002). *Cultivating communities of practice.* Boston, MA: Harvard Business School Publishing.

Wisdom, J. P., Chor, K. H., Hoagwood, K. E., & Horwitz, S. M. (2014). Innovation adoption: a review of theories and constructs. *Administration and Policy in Mental Health, 41*(4), 480-502. https://doi.org/10.1007/s10488-013-0486-4

WHO and UNICEF. (2015). Progress on sanitation and drinking water. Retrieved from http://files.unicef.org/publications/files/Progress_on_Sanitation_and_Drinking_Water_2015_Update_.pdf

World Institute of Action Learning. (2019). What is action learning? Retrieved from https://wial.org/action-learning/

Yin, R. K. (2009). *Case study research design and methods.* Thousand Oaks, CA: Sage.

Yin, R. K. (2016). *Qualitative research from start to finish.* New York, NY: The Guildford Press.

Appendix A

IRB Approval

INDIANA UNIVERSITY

OFFICE OF THE VICE PRESIDENT FOR RESEARCH

Office of Research Compliance

NOTICE OF EXEMPTION - NEW PROTOCOL

DATE:	July 01, 2019
TO:	Yonjoo Cho, Principal Investigator EDUCATION Lona Robertson UNIVERSITY LEVEL
FROM:	Human Research Protection Program (HRPP) Office of Research Compliance – Indiana University
RE:	Protocol #: 1905838479 Protocol Type: Exempt Protocol Title: Building Capacity in Fecal Sludge Management: A Mixed Methods Study of Transfer Funding Source: BILL & MELINDA GATES FOUNDATION

In accordance with 45 CFR 46.101(b) and/or IU HRPP Policy, the above-referenced protocol is granted exemption. Exemption of this submission is based on your agreement to abide by the policies and procedures of the Indiana University Human Research Protection Program (HRPP) and does not replace any other approvals that may be required. Relevant HRPP policies and procedures governing Human Subject Research can be found at: https://research.iu.edu/compliance/human-subjects/guidance/index.html

Submission and Review Information:

Type of Submission:	Initial Protocol Application
Level of Review:	Exempt
Exempt Category(ies), if applicable:	Category 2: Research that only includes interactions involving educational tests, survey procedures, interview procedures or observation of public behavior.Category 3: Research involving benign behavioral interventions.
Date of Exemption Granted:	July 01, 2019
Authorized HSO Signature:	Adam Mills

Regulatory Determinations:

- Study meets the criteria for approval defined by the HRPP Policy on IRB Review Process

Documents Approved with this Submission (for Amendments and Renewals, documents appearing in bold were either added or replaced with the submission):

Attachment Type - Document Version #
Other - Email granting permission for the study from the ITN-BUET Director Data Collection Instrument - Data Collection Instruments in English Study Information Sheet - Informed Consent statement in English (to be read in English and in Bangla) Recruitment Materials - Recruitment script to be read in English and Bangla at the beginning of the workshop.

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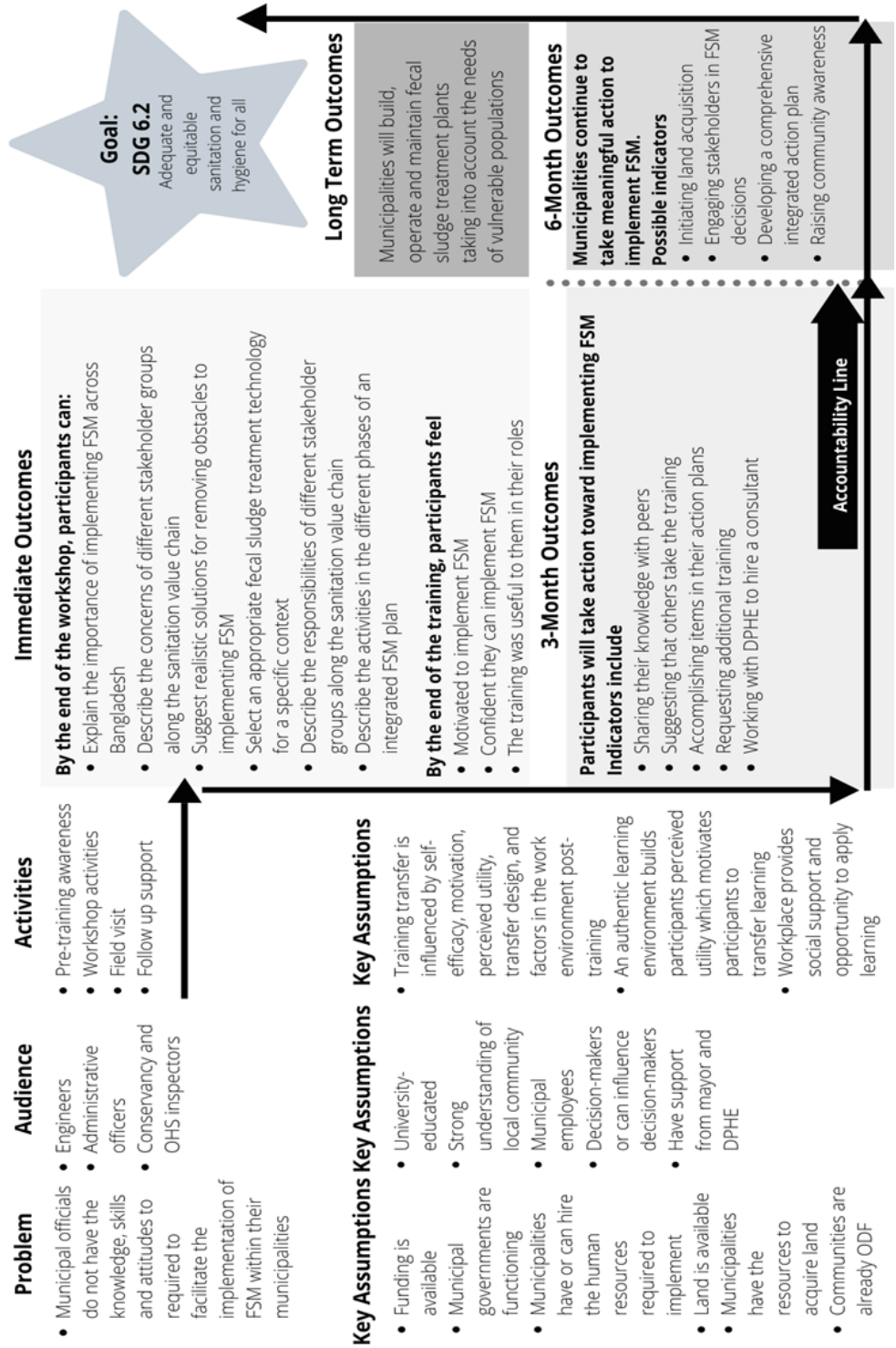
Appendix B

Theory of Change



Appendix C
Links to Training Materials

Training Materials (full package):

https://drive.google.com/open?id=1xiFhvKAy8SEn5Yrn0UxJERgFrriF1138

Case Study Sample: https://drive.google.com/file/d/1mcxGQ0RlK7xDUNAGlBG-_ILi-ZNkmXKF/view?usp=sharing

Step 1: Context Analysis: https://docs.google.com/document/d/1D60uvxYypqIzfUHxPIOz-7gGDCWBcM3EKwcRioT1_G8/edit?usp=sharing

Appendix D

Workshop Brochure

Appendix E

Pre-Training Survey

As part of our commitment to excellence, ITN-BUET is using a new approach to delivering training. Your participation in this survey will help us evaluate the effectiveness of the training in increasing your knowledge, skills and attitudes about FSM. In this questionnaire, you are asked to think about your feelings about the workshop you are going to participate in. The questionnaire will take about 5 minutes to complete. Your responses will be confidential and only seen by xxxx.

Name:	**Age:**
Email:	**Phone number:**

Do you give permission take your photograph during the workshop as part of the research? Yes / No
Do you give permission to publish photographs of you during the training? Yes / No

Section 1
Please rate your current level of confidence in your knowledge about the following topics by circling the number that most closely matches your feeling.

	Very confident	Moderately Confident	Somewhat confident	Only slightly confident	Not at all confident
I can explain the importance of implementing FSM across Bangladesh.	5	4	3	2	1
I can describe the concerns of different stakeholder groups along the sanitation value chain.	5	4	3	2	1
I can suggest realistic solutions for removing obstacles to implementing FSM.	5	4	3	2	1
I can select an appropriate fecal sludge treatment technology for a specific context.	5	4	3	2	1
I can describe the responsibilities of different stakeholder groups along the sanitation value chain.	5	4	3	2	1

I can describe the activities in the different phases of an integrated FSM plan.	5	4	3	2	1

Section 2

Please rate your level of agreement with the following statements by circling the number that most closely matches your opinion.

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
I know how this training will benefit me in my work.	5	4	3	2	1
I have a good understanding of how this training fits with my professional development goals.	5	4	3	2	1
I know what to expect in this training.	5	4	3	2	1
After this training, I look forward to trying out what I will learn.	5	4	3	2	1
I believe this training will help me make decisions related to a critical problem in my municipality.	5	4	3	2	1
This training will improve my professional skills.	5	4	3	2	1

Section 2 is adapted from the Learning Transfer System Inventory Version 4 (Bates & Holton, 2012). Used with permission.

Appendix F

Post-Training Survey

In this questionnaire, you are asked to think about your feelings about the workshop you just completed. The questionnaire will take about 15 minutes to complete. Your responses will be confidential and only seen by Lona Robertson. If you have any questions about this survey, please feel free to Lona Robertson at xxxx

Name:

_____

Section 1
Please rate your current level of confidence in your knowledge about the following topics by circling the number that most closely matches your feeling.

	Very confident	Moderately Confident	Somewhat confident	Only slightly confident	Not at all confident
1. I can explain the importance of implementing FSM across Bangladesh.	5	4	3	2	1
2. I can describe the concerns of different stakeholder groups along the sanitation value chain.	5	4	3	2	1
3. I can suggest realistic solutions for removing obstacles to implementing FSM.	5	4	3	2	1
4. I can select an appropriate fecal sludge treatment technology for a specific context.	5	4	3	2	1
5. I can describe the responsibilities of different stakeholder groups along the sanitation value chain.	5	4	3	2	1
6. I can describe the activities in the different phases of an integrated FSM plan.	5	4	3	2	1

Continued on the next page …

Section 2
Please rate your level of agreement with the following statements by circling the number that most closely matches your opinion.

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1. I enjoyed this workshop.	5	4	3	2	1
2. I look forward to trying out what I have learned in my workplace.					
3. I believe this training will help me make decisions related to a critical problem in my municipality.	5	4	3	2	1
4. This training has improved my professional skills.	5	4	3	2	1
5. The methods used in this training are very similar to things I do in my real job.	5	4	3	2	1
6. The methods used in this training were very similar to how we do things on the job.	5	4	3	2	1
7. I like the way this training seems so much like my job.	5	4	3	2	1
8. The instructional aids used in this training are very similar to real things I use on the job.	5	4	3	2	1
9. It is clear to me that the people conducting this training understand how I will use what I learn.	5	4	3	2	1
10. The trainers used a lot of examples that showed me how I could use my learning on the job.	5	4	3	2	1
11. The way the trainer taught the materials made me feel more confident I could apply it in my job.	5	4	3	2	1

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
12. I will be able to try out this training on my job.	5	4	3	2	1
13. The resources I will need to use what I learned will be available to me.	5	4	3	2	1
14. I will get opportunities to use this training on my job.	5	4	3	2	1
15. I do not have time to try to use this training on my job.	5	4	3	2	1
16. Trying to use this training will take too much energy away from my other work.	5	4	3	2	1
17. There is too much happening at work now for me to try to use this training.	5	4	3	2	1

Note: Section 2 is adapted from the Learning Transfer System Inventory Version 4 (Bates & Holton, 2012). Used with permission.

Section 3

Your opinions are important to us. Please tell us how we can improve this workshop for next time.

What did you like about the workshop?

How can we improve the workshop for next time?

Appendix G

Workshop Observation Checklist

Motivation Indicators:

- Active participation in task-based activities
  (Note body language. Take pictures of active engagement.)
- Asks relevant questions about the content in class
  Note numbers of questions
  Examples of questions:
- Makes notes in reflection journal outside of assigned times:
- Asks questions about the content outside of class

Self-Efficacy Indicators:

- Participant explains content to other participants
  Examples:
- Participants volunteers opinions about the content:

Perceived Utility Indicators:

- Participants review the content outside of class:
- Participants think about the learning after class (At the beginning of each day, ask if anyone has any questions about what was learned the day before. Note the questions.)
- Students talk about the content with other participants and/or facilitators outside of the activities:

  Examples of conversations with facilitators:

  Examples of conversations heard between participants
- Makes notes in the reflection journal during class
  (Ask if it is possible to take a picture of the notes of some participants)

Appendix H

Sample Email Interview Protocol

In September 2019, you completed the training, *CWIS through FSM: The Planning Process*. We are now evaluating the results. In this questionnaire, you are asked to think about your experiences since you completed the training. The questionnaire will take about 30 minutes to complete. Please type your responses in this document and email it back to us. Your responses will be confidential and only seen by Lona Robertson and the ITN-BUET team.

Name:_____

Section 1

You listed the following goals and action items on your action plan at the end of the training. Please indicate if you accomplished your action items.

Time	Goal	Action Items	Accomplished
1 week	Motivation	Meeting with mayor, councillor and staff	Y/N
3 months	Current situation analysis, analyze stakeholders along the FSM value chain, gender inclusion	Survey household, official meeting with stakeholders such as DPHE, TLCC, WLCC, NGO, pit emptier, political leader household.	Y/N

If you were able to accomplish some action items, what helped you accomplish them?

If you were not able to accomplish all the action items, what prevented you?

Please describe any actions you took that were not in your action plan.

Section 2

The following statements describe the workplace environment. Please rate your level of agreement with the statements by circling the number that most closely matches your opinion.

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1. My supervisor has met with me regularly to work on problems I had trying to use the training.	5	4	3	2	1

2. My supervisor has met with me to discuss ways to apply the training on the job.	5	4	3	2	1
3. My supervisor gave me realistic goals for job performance based on the training.	5	4	3	2	1
4. I received suggestions from people about how I could use the training.	5	4	3	2	1
5. I got advice from people about how I could use the training.	5	4	3	2	1
6. People helped me apply the training.	5	4	3	2	1
7. My colleagues encouraged me to use the skills I learned in the training.	5	4	3	2	1
8. My colleagues expect me to use what I learned in the training.	5	4	3	2	1
9. My colleagues appreciate the knowledge and skills I acquired from the training.	5	4	3	2	1

Section 3

1. Which public representatives and officials (Mayor, Secretary, CEO, Executive Engineer, etc.) have discussed your action plan?

2. Did you make changes to your original FSM Action Plan?

   a. Yes b. No

   What changes were made and why?

3. Was the FSM Action Plan revised/finalized after discussion with Paurashava Mayor, Councillors, officials and other important stakeholders?

   a. Yes b. No

4. Have you displayed a copy of the Action Plan in a place that is visible to all who come to the paurashava office?

   a. Yes b. No

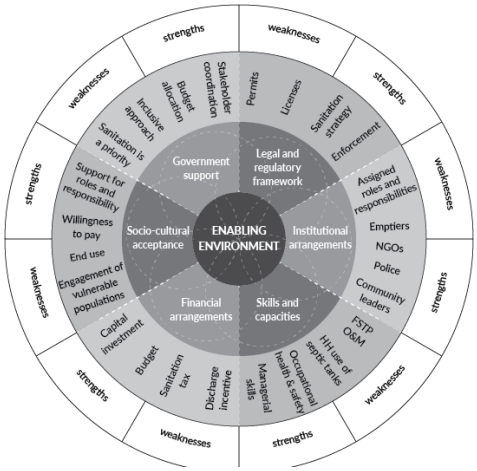
   If yes, please tell us where it is displayed and share a photograph.

5. Have you made any other effort to increase public awareness of FSM?

   a. Yes b. No

   If yes, please give an example:

6. How strong is the current 'Enabling Environment' in your paurashava regarding implementation of the FSM Action Plan? (Please circle the number that most closely matches your opinion.) Hint: The enabling environment includes the following elements:



Enabling Environment Elements	Very strong	Strong	Neutral	Weak	Very weak
1. Socio-cultural acceptance of FSM	5	4	3	2	1
2. Legal and regulatory framework	5	4	3	2	1
3. Financial arrangements	5	4	3	2	1
4. Institutional arrangements	5	4	3	2	1
5. Government support	5	4	3	2	1
6. Skills and capacities	5	4	3	2	1

7. Has your paurashava allocated land for construction of a fecal sludge treatment plant?

   Yes/No

   Dimensions of the land: _____

   If purchased, what was the cost?__

8. Please rate how supportive your DPHE representative has been in terms of implementing FSM in your paurashava.
    a. Extremely supportive
    b. Very supportive
    c. Moderately supportive
    d. Slightly supportive
    e. No support received

9. How helpful was *CWIS through FSM* workshop in terms of your role in implementing FSM in your paurashava?
    a. Extremely helpful
    b. Very helpful
    c. Moderately helpful
    d. Slightly helpful
    e. Not at all helpful

10. Which of your paurashava colleagues should take the *CWIS through FSM* training?

11. Please list any topics you think we should cover in the *CWIS through FSM* workshop, but didn't.

Appendix I

Sample Focus-Group Protocol

I'm here to learn more about the effectiveness of the FSM workshop that you participated in. Thank you for taking the time to talk with me today. The purpose of this interview is to learn about the barriers and facilitators of your actions after the training. There are no right or wrong answers, or desirable or undesirable answers. I would like you to feel comfortable saying what you really think and how you really feel. If it's okay with you, I will record our conversation since it is hard for me to write down everything while simultaneously carrying an attentive conversation with you. Everything you say will remain confidential, meaning that only myself and my teammates will have access to your answers. Do you have any questions? Do you wish to participate?

Q1. You achieved your Week 1 and 3 Month goals. Congratulations!

Time	Goal	Action Items	Accomplished
1 week	Motivation	Meeting with mayor, councillor and staff	Y
3 months	Current situation analysis, analyze stakeholders along the FSM value chain, gender inclusion	Survey household, official meeting with stakeholders such as DPHE, TLCC, WLCC, NGO, pit emptier, political leader household.	Y

- Tell us about the meeting you held with mayor and council after the training. Please explain what you discussed and how you tried to motivate them.
- How did you raise awareness with the community? Describe how you delivered your message. What was the response? What stakeholders were present? What strategies did you use to motivate your stakeholders to make sanitation a priority?
- You purchased land. Please tell us how you arranged that.
- DPHE: How have you supported the municipality?
- Is there anything else you have done to move FSM forward?

Q2. Thinking about yourself, what motivated you to take action after the workshop? In the face of these challenges, how is your motivation now? What keeps you motivated? After the training, most people felt confident about implementing FSM. How is your confidence now?

Q3. Thinking about the training design, most of you said that the training was very helpful. What aspects of the workshop do you feel helped you most? After the workshop, did you use or refer to any of the materials you were given during the workshop? Which ones, and why?

Q4. Thinking about your work environment, what role has your supervisor/mayor played in helping you apply what you learned? In what ways have your peers helped you?

Q5. Are there any other barriers you have faced when trying to achieve your goals? How did you overcome those challenges? How did the challenges affect your motivation to continue?

Q6. How could the training have better prepared you to be successful? What additional information do you need to continue implementing FSM? Apart from money, what additional support would help you reach your goals?

Q7. Where does FSM fit in terms of the mayor's priorities for your paurashava?

Q8. Looking ahead, what are your next steps in terms of implementing FSM in your municipality? How do you plan to ensure social and gender inclusion are considered in your implementation?

Curriculum Vitae

AREAS OF STRENGTH
Adult learning theory – Instructional Systems Technology – International Capacity Development

EDUCATION
2020 Ed.D. (Instructional Systems Technology), Indiana University- Bloomington
2009 M.Ed. (Distance Education), Athabasca University
1992 TESOL Diploma, Vancouver Community College
1984 B.A. (Japanese) University of British Columbia

PROFESSIONAL EXPERIENCE

2018-Present, Global Learning Advisor, CAWST, Calgary, AB

- Train partners, clients and staff using a variety of methods including workshops, mentoring, peer support, and apprenticeship to effectively design and deliver WASH related workshops
- Develop and maintain strong client relationships, building and sustaining credibility with your clients and potential clients
- Support CAWST staff to effectively deliver online and face-to-face training in WASH
- Prepare and deliver webinars, online courses, and training workshops
- Support the design, development, evaluation, and improvement of CAWST's education and training materials
- Develop online and face-to-face training programs that result in action leading to safe water and sanitation
- Develop digital learning tools suitable for clients in low-income countries

2009 to 2018, Owner, TEAL Learning Solutions Ltd., Calgary, AB

- Provide contract instructional design services for synchronous and asynchronous online and/or face-to-face programs
- Provide language training for groups and individuals using synchronous and asynchronous online technologies

Clients: Pearson/GlobalEnglish, Bow Valley College, Southern Alberta Institute of Technology, BuildEd Corp.

2014 – 2017, Instructional Design Team Coordinator, Southern Alberta Institute of Technology

- Train, supervise and mentor instructional design team members
- Conduct needs analyses, create program designs, build learning designs and develop course content
- Meet with SMEs or other primary stakeholders on a regular basis
- Assist SMEs in translating subject matter into suitable workplace-oriented learning outcomes and objectives
- Recommend teaching and learning strategies, and appropriate educational technologies to enhance course delivery
- Work with project managers to ensure projects are on time, on budget and within scope
- Ensure accurate documentation according to rules, styles, and templates and adhere to copyright laws
- Update course outcomes and objectives in accordance with industry accreditation standards

- Adhere to SAIT Curriculum Excellence principles and current best practice in instructional design

Projects: Culinary Entrepreneurship Post-Diploma Program, Entrepreneurship and Innovation Program, Language Training Program for Apprentices, Bachelor of Business Administration degree courses

2006 to 2016, Content Writer/Online Trainer (Contract), Pearson/GlobalEnglish, Brisbane, CA, USA

- Designed lesson plans and facilitated online English as a second language (ESL) classes for business-oriented language training
- Designed and develop e-learning tutorials: create storyboarding, write scripts, build lessons using authoring tool

2011 - 2012, Teaching and Learning Consultant (Contract), Bow Valley College Calgary, AB

- Designed workshops, seminars, training materials and tutorials to support all elements of technology-enabled learning
- Provided hands-on technical training and e-learning support
- Participated in the delivery of various faculty development programs such as instructor boot camps, Instructional Skill Workshops, webinars
- Supported and participated in projects and initiatives with instructors, focused on teaching excellence and the integration of technology into instructional practice.
- Promoted teaching excellence and curriculum excellence to meet standards of learner engagement and effectiveness

2008 to 2009, Director, International House Calgary, Calgary, AB

- Managed operations of the school including admissions, budgeting, accommodation, extracurricular activities, records management, facilities maintenance
- Facilitated transition to new ownership
- Hired and trained staff; led staff meetings; conducted performance evaluations
- Ensured that school met or exceeded guidelines for Languages Canada and IHWO accreditation
- Developed ESL curriculum and put new programs into place to meet market needs
- Led professional development seminars

1999 to 2008, Owner/Director, Focus International Language Training, Calgary, AB

- Developed ESL curriculum for new programs to meet market needs
- Hired and trained staff; conducted performance evaluations
- Promoted the school by attending recruitment fairs and visiting agents around the globe
- Supervised the development of marketing materials: brochures, flyers, video, web site
- Established and maintained long-standing relationships with agencies to recruit students

TECHNICAL SKILLS

Microsoft Certified Systems Engineer (MCSE)
Articulate 360
Moodle/ Blackboard/ D2L Brightspace/ Canvas
Adobe Connect/Blackboard Collaborate/Zoom

LANGUAGES

Japanese, French, Spanish

AWARDS RECEIVED

Athabasca University Convocation Scholarship
Queen Elizabeth II Graduate Scholarship
Okamatsu Family Scholarship for Japanese Studies
Japan Foundation Summer Scholarship in Japanese